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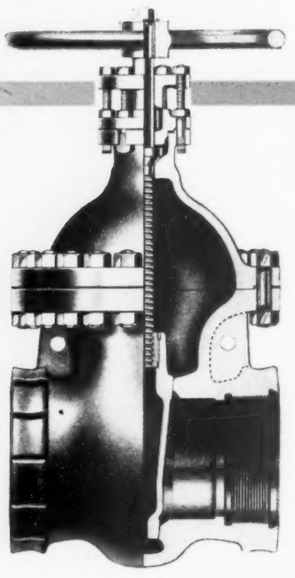

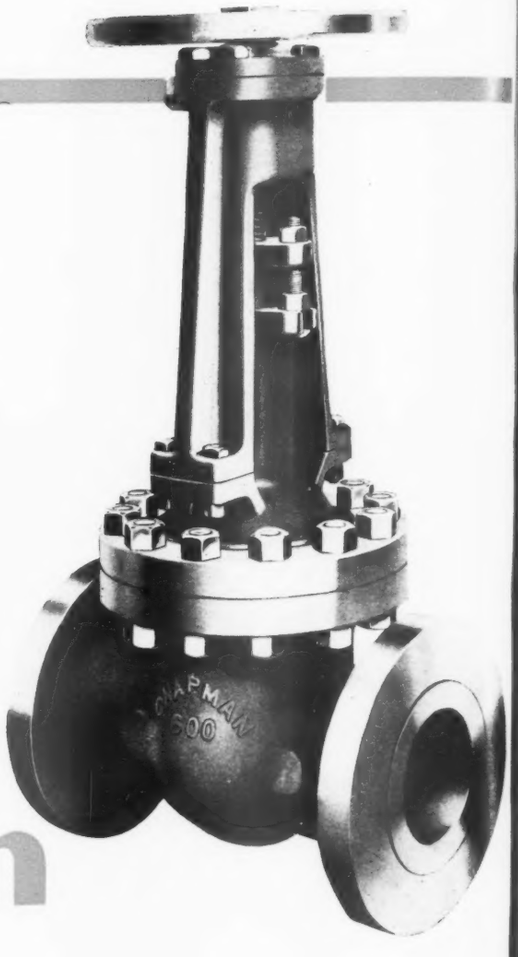

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The Oil and Gas Journal

PRODUCING REFINING ENGINEERING MARKETING

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All Watching Oklahoma and California

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Curtailment Efforts on Pacific Coast and Talk of Crude Price Increase in Mid-Continent Interest Operators

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

Of equal interest and importance to operators throughout the United States is the progress of the conservation movement in California and the situation in Oklahoma. Greater success than many had expected seems to be attending efforts of operators in California to make effective the conservation plan there which contemplates a reduction in production of 143,118 barrels daily, beginning on Saturday of this week. Under the first order of the umpire in California, inaugurated on April 22, approximately 70,000 barrels daily of production was shut in at the close of last week. The completion of a number of large wells in active pools, together with the natural delay encountered in putting the plan into operation, resulted in only a nominal decline being shown in the State's production last week.

In Oklahoma discussion of the probability of a crude oil price increase in the near future is becoming much more general. Much of the talk evidently is based on the belief that one of the largest major purchasers contends it needs more crude oil than it is getting under present arrangements and that this purchaser is anxious to increase prices. A majority of the operators believe a crude oil price increase in the Mid-Continent area at this time might have an adverse effect upon the conservation movement in other areas and result in unrestricted drilling and producing, with a possible consequent flood of gasoline and crude from the Pacific Coast to the Eastern Seaboard. Such gasoline and crude oil naturally would back up the products from the Mid-Continent which must be marketed in the eastern territory and the Mid-Continent operators might be confronted with the same situation they faced in 1923 and 1924. However, there are few operators but who admit a crude oil price increase seems a probability of the very near future.

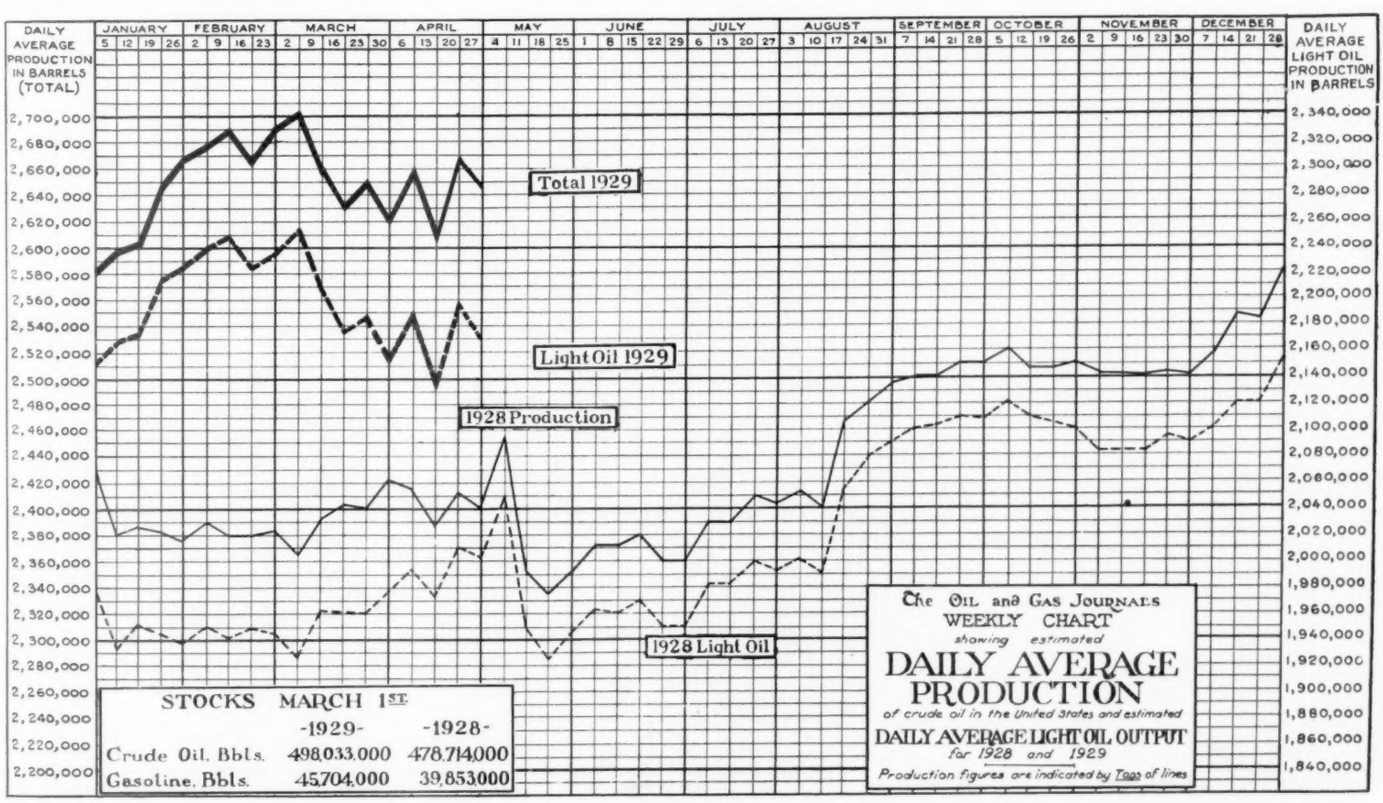
It is probable production in Oklahoma will register an increase this week due to the opening of wells in the Seminole area to get gauges of potential output. At the same time indications are for a substantial decrease in California.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended April 27, and a comparison with the previous week follows:

	April 27		April 20	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	10,340	.....	10,365	.....
Burbank	20,945	.....	21,115	.....
Other Osage Fields	24,785	.....	24,970	.....
St. Louis-Pearson	101,870	.....	109,720	.....
Cushing and Shamrock	20,535	.....	20,585	.....
Bristow	19,620	.....	19,635	.....
Allen	25,745	.....	26,240	.....
Seminole	268,510	.....	271,085	.....
Northern Miscellaneous	116,145	.....	114,620	.....
Southern Fields	54,130	.....	54,570	.....
Total Oklahoma	662,625	.....	672,905	.....
West Texas—				
Hendricks	144,097	.....	145,110	.....
Yates	88,103	.....	87,649	.....
Remainder	126,298	.....	122,058	.....
Total West Texas	358,498	.....	354,817	.....
North Louisiana	29,895	5,880	29,710	5,915
Arkansas	23,235	49,070	25,065	48,425
North Central Texas	137,782	.....	135,887	.....
Texas Panhandle	60,530	.....	64,325	.....
East Central Texas	19,584	.....	20,502	.....
Kansas	109,590	.....	108,745	.....
Total Mid-Continent Area	1,401,739	54,950	1,411,956	54,340
Gulf Coast	.....	158,566	.....	153,535
Southwest Texas	.....	73,838	.....	73,666
Eastern	111,500	.....	111,000	.....
Rocky Mountain Area	65,966	.....	72,955	.....
California—				
Santa Fe Springs	172,000	.....	161,000	.....
Long Beach	176,000	.....	189,000	.....
Torrance	2,000	11,750	2,000	12,000
Huntington Beach	45,000	.....	45,500	.....
Elwood	31,000	.....	30,000	.....
Inglewood	14,000	11,000	14,500	11,000
Ventura Avenue	55,000	.....	55,000	.....
Seal Beach	42,500	.....	50,000	.....
Remainder of State	55,000	165,000	56,000	166,000
Total California	593,000	187,750	603,000	189,000
Total United States	2,172,205	475,104	2,198,911	470,541
Grand Total		2,647,309		2,669,452

→ **Total Decrease, 22,143 Bbls.; Light Oil Decrease, 26,706 Bbls.** ←



Domestic Grades of Gasoline Advance

Establish Price of 7⅝ Cents for U. S. Motor Grade. Outlook Favorable for Lubricating Oils

By C. O. Willson

Refinery gasolines, particularly the domestic grades, pointed upward again in the Oklahoma (Group 3) market the first of the week. After firmly establishing a 7½-cent price to the trade last week, an advance to the 7⅝-cent level was started on Saturday. By Tuesday this price was fairly well established on sales direct to the jobbing trade in the Middle West.

Except for these refinery grades of gasoline for domestic movement and lubricating oils, the Oklahoma market was slow the first of the week. Weakness in kerosenes continued and it was apparent on Tuesday that a 6-cent price for the 41-43 water white grade would prevail at the start of the new month with sales for delivery over the month indicating further price weakness. There has been little change in natural gasoline prices but the movement has been slow for the past 10 days with the early May market dependent on the new business that develops the first few days of the month.

Low priced competition from other areas—particularly West Coast—continues to dominate the fuel oil and gas oil market in shipments to Middle West points and these products are weak in Oklahoma. Wax stocks are accumulating in Oklahoma due to the dearth of buying.

Lubricating Oils

The lub oil business in Oklahoma is looking up. Since the first of the year developments have pointed to an exceptionally favorable year for all manufacturers who are in a position to manufacture high grade products meeting the demands of the consuming trade.

Probably every reader is familiar with the fact that there has been a change in the consuming demand for lubricating oils. In many respects it has closely paralleled the demand for antiknock gasolines. The high compression engine of the new automobiles not only demands an antiknock motor fuel but it also requires a lubricating oil of relatively high viscosity and high fire test. Manufacturers of cars and their dealers insist that their customers use oils having these specifications.

This attitude on the part of the automobile industry, coupled with national advertising and sales effort on the part of several large oil companies, including the Pennsylvania group of refiners, has created a consuming demand for the heavier grades of lubricating oils. The refiners offering a lubricating oil made from Pennsylvania grade crude oil have had a steady increase in price for their finished lubricating oils and stocks over the past year, the increase being especially rapid since the first of the year.

An idea of the present Pennsylvania refinery situation can be obtained from the prices in effect this week. The 600 steam refined stock is selling at 33 cents a gallon with practically the same price for 200 viscosity 3 color neutral and 50 cents the minimum price being paid for Pennsylvania bright stock.

The demand for the high viscosity stocks and neutral oils has created a shortage which may become more acute during the summer months. The car owners are getting away from the old practice of "give me a quart of oil" generally sold at 25 cents and are willing to pay 30 to 40 cents a quart for a well-established brand. But competition as to quality is keen among these better grades of branded oils and the refiners have been forced to constantly improve their product.

From the refiners' angle the manufacture of these improved oils means the use of more and more bright stock and high viscosity neutrals in compounding the finished oils. This tends to decrease the yields obtainable and accounts for the fact that lub manufacturers are giving more attention to new manufacturing methods.

In Oklahoma refiners are constantly improving their products especially bright stocks and steam refined stocks. In the neutral end there is now a strong demand for 280 product whereas a few years ago the bulk of the demand was for 200 viscosity 3 color.

Refiners who are in position to manufacture a stock or finished lubricating oil which can be sold in competition with the better Eastern grades have not been able to supply the demand for several months. One refiner has gradually advanced his 600 steam refined stock to 15 cents a gallon and reports a strong demand at that level. The low on the better grades is now 9 cents. Bright stocks are bringing from 30 to 37 cents a gal-

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REFINED MARKET BAROMETER

Prices were advanced on domestic grades of refinery gasoline during the past week when any changes were made. The Middle West and Mid-Continent markets were particularly active. Motor lubricants also were active and prices on steam refined cylinder stocks and bright stocks were again advanced in all areas. Kerosene prices which advanced rapidly several weeks ago are declining at interior points. Prices are unchanged in other areas. Movement of fuel oil and gas oil is fair but at a few refining centers the supply apparently exceeds the demand and operators have shaded prices to move additional material. Natural gasoline prices are firm despite a slow spot movement in the Mid-Continent over the latter part of April. The wax market is generally soft.

Mid-Continent—A majority of refiners in all areas advanced their prices on U. S. Motor gasoline and other domestic grades one-eighth to one-fourth cent. Gasoline export market inactive. Kerosene prices lower with principal weakness in North Texas, Oklahoma and Kansas. Minor changes in fuel oil and gas oil with prices soft. Steam refined cylinder stocks, bright stocks and high viscosity grades of neutral oils strong. Natural gasoline prices fairly steady despite slow movement. Wax soft.

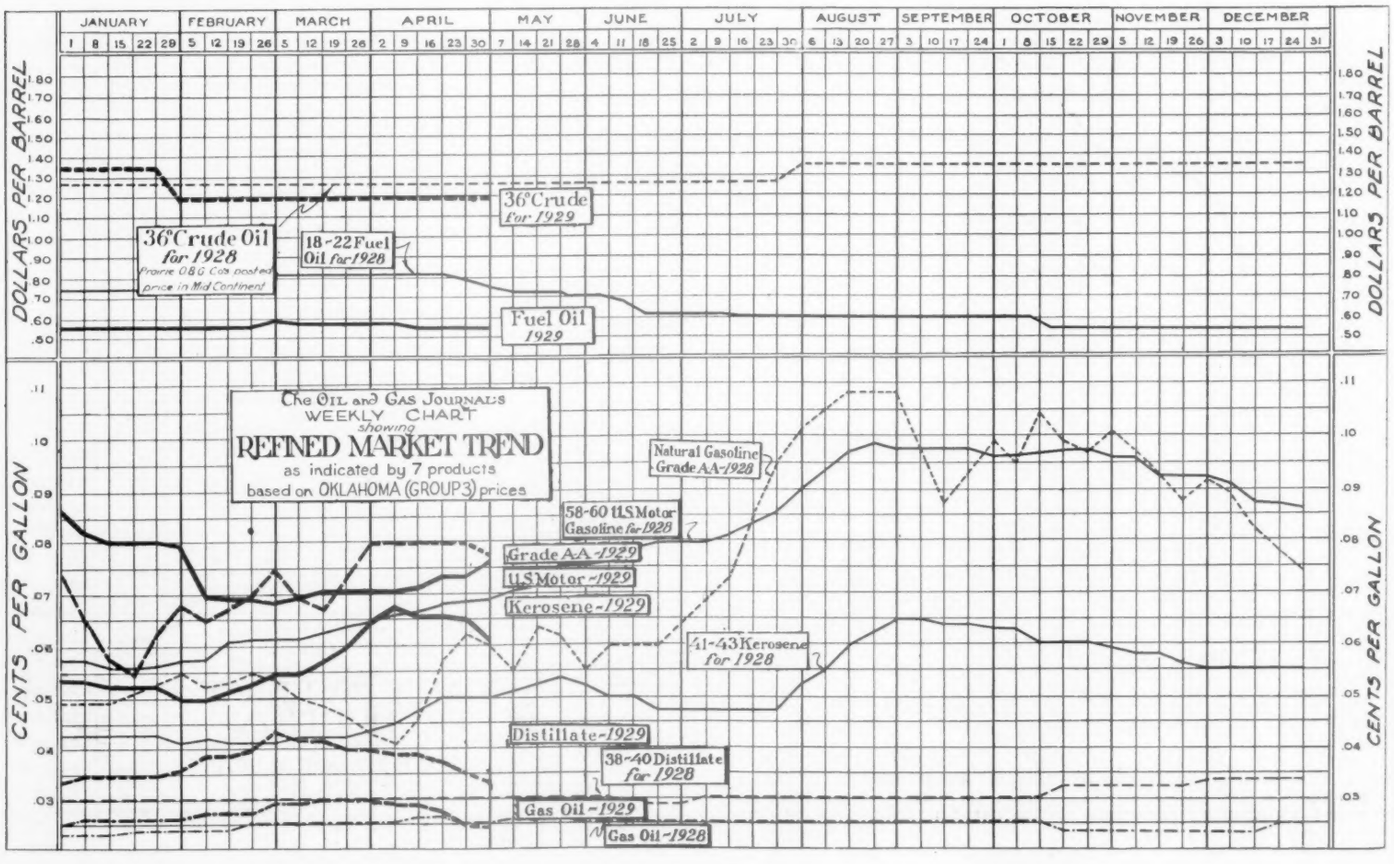
Atlantic Coast—Gasoline market stronger with most sellers asking 9¼ cents for U. S. Motor gasoline for domestic movement. Kerosene firm. Shortage in cylinder stocks and prices higher for both export and domestic movement. Paraffin wax soft. Better movement of petrolatum. Fuel oil prices steady. Gas oil weaker.

Pennsylvania—High viscosity neutrals oils, steam refined cylinder stocks and bright stocks advanced from 2 to 5 cents per gallon. Refinery gasoline strong. Kerosene weaker. Wax weak.

Gulf Coast—Market steady with no important price changes.

California—Prices unchanged.

Chicago—Gasoline market active. Kerosene weaker. Steam refined cylinder stocks and bright stocks active. Distillates easy. Fuel oils sluggish.



California Shut in 70,000 Bbls. Daily

New Order, Effective May 4, Makes Movement State Wide and Contemplates Reducing Output by 143,118 Bbls. a Day

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Apr. 30.—California operators are expected to reduce crude oil production 143,118 bbls. per day on May 4 in conformity with a new order issued by Umpire van Deinse under date of April 29. General Order No. 2, just issued, is statewide in scope and definitely establishes a new maximum daily production for every field in the State. It is based on the individual potential daily production of every lease as of April 15 and will continue in effect until countermanded by a subsequent order.

General Order No. 2 supersedes General Order No. 1 which became effective April 22 and resulted in the curtailment of about 70,000 bbls. daily. General Order No. 2 does not contemplate an additional curtailment of 143,000 bbls. but merely readjusts the original curtailment to bring it into line with recent developments.

Many operators failed to conform to the provisions of General Order No. 1 but the favorable response by a large number of operators has proven a source of much encouragement to Umpire van Deinse and it is thought that all but a few will soon approve the attempt to mutually reduce state production to the 1928 daily average.

The delay in carrying out the provisions of General Order No. 1 and the completion of several large flowing wells kept state production at a relatively high level last week but curtailment will be reflected to a substantial degree during the current week.

Kettleman Hills operators failed to agree on a definite basis of curtailment but operators are considerably encouraged by an assurance that California's new gas law will become effective very soon as the administration is pushing it right along as an emergency measure.

Big Drop End of Week

Reflecting mutual curtailment, California production registered a substantial drop at the close of the first week of operation of the conservation plan which was inaugurated April 22, and a further reduction is anticipated as the initial shut-in was not totally effective by any means, due in some instances to insufficient preliminary preparations. It will require another week or two before the final outcome can be definitely determined as a number of independent operators have not yet made any move to actively participate in this constructive action. It is a known fact that some are not in favor of restricting production, and it remains to be seen whether their refusal to co-operate will have any great effect on the ultimate outcome from both a moral and production standpoint. A check made this morning indicated that every major company and a large number of the more important independent producers had either already reduced their output to the allotted production or were completing final arrangements to comply with Umpire F. C. van Deinse's general order No. 1, which established a definite current allowable production for all fields in the State with the exception of those situated in the San Joaquin Valley which, incidentally, will be taken care of around the first of May.

Production for the first week just closed does not reflect the total curtailment made since 7 a.m. Monday, April 22, when the first curtailment order went into effect, as obviously many properties were not reduced until late in the week since operators first concentrated their efforts in flush areas. The mechanics of accomplishing the proration differ in many ways due to existing characteristics peculiar to each field, the more efficient operators giving considerable attention to prevailing gas-oil ratios and the probable ultimate recovery. Edgewater conditions in depleted fields and properties undergoing repressuring also demand special attention in order to safeguard productive acreage from water intrusion and prevent dissipation of natural gas and the voiding of gas conservation undertaken up to the present time. The situation is a rather complex one due to intensive town lot drilling which has characterized development work in practically every major field of Los Angeles Basin.

Umpire Urges Co-operation

One of the most interesting developments of the past week and one which may exert an important bearing on future curtailment of crude oil in California was the announcement that directors of the American Petroleum Institute had decided to co-operate with the Federal Oil Conservation Board in the promulgation of an interstate compact which would limit production by controlling drilling operations in lieu of the voluntary curtailment plan.

Umpire van Deinse promptly issued the following announcement to California operators in order to clarify the situation: "An article appearing in press dispatches from New York under date of April 24 seems directed primarily to effect the control of new drilling for oil and gas, regarding which California operators would probably take voluntary measures on their own account at an early date regardless of any legislation that might be contemplated in that direction. So far as any legislation to control production from existing wells in California is concerned, the effectiveness of any such possible legislation could hardly be expected to benefit conditions as they will soon unquestionably exist if all producers in this State do not conform to the present voluntary production curtailment program. In my opinion it is to be hoped that the California oil industry will not slip back now to producing its wells to capacity regardless of economics because of a prospect the realization of which may be disappointing."

That major California operators have kept their pledge to independent producers is evidenced by the fact that The Texas Company, Standard, Union, Shell, General Petroleum, Marland and Richfield have reduced their aggregate daily production 58,300 bbls. since last Monday and hope to be within their allowable quota within the next few days as every effort is being made to achieve the desired result. In settled fields where pumpers are the rule rather than the exception operators are cutting production in several ways. Experiments are being conducted in these fields in order to ascertain if the proposed 24-hour shutdown once every week would accomplish satisfactory results without penalizing producing wells around the edge. Preliminary work indicates that many wells build up during this cessation of pumping activities and the possibility of reducing production to the allotted quota by a general daily shut down seems rather remote. It is the general consensus of opinion that operators will have to regulate their production individually by taking wells off the beam for a sufficient length of time to cut production down to the allotted amount. The time of this shutdown obviously depends upon the normal rate of production, subsurface conditions and other factors af-

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Institute Awaits Oil Board's Plan

Meanwhile State Movements Will Continue Efforts for Conservation Within the Industry

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Apr. 27.—Operation of the national conservation and curtailment program adopted by the American Petroleum Institute directors at a special meeting here last month will be temporarily held in abeyance pending further developments in the Federal Oil Conservation Board's plan of an interstate production compact, it was decided at a meeting of the General Committee of the American Petroleum Institute on World Production and Consumption of Petroleum and its Products, and the board of directors of the Institute here this week.

While preliminary discussions leading up to the general meeting here had developed some difference of opinion among leading oil men as to the advisability of attempting to go forward with the plan which failed to receive the approval of the Federal Oil Conservation Board, the final decision by which the Institute will "mark time" pending further developments, received the unanimous approval of the some forty oil leaders assembled for the conference.

The results of the meeting were announced in a statement issued by the American Petroleum Institute, reading as follows:

Statement by Institute

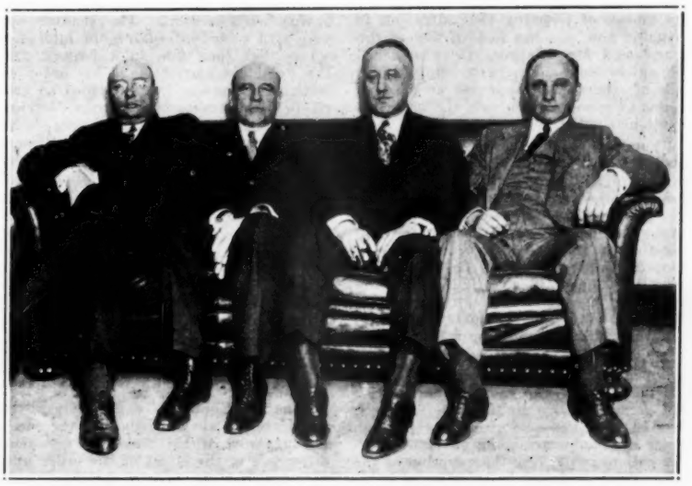
"The board of directors of the American Petroleum Institute at its meeting today gave careful consideration to the proposals of the Federal Oil Conservation Board as contained in its letter of April 8 to R. C. Holmes, chairman of the General Committee on World Production and Consumption. In this letter the board stated as follows:

"'The problem appears to the board . . . due to the legal inhibitions, to be one in the real solution of which action must be secured from the different states. The board recognizes that individual state action, without co-ordination, would not cover the question, but with a view to bringing about such a program and its co-ordination, the board believes it would be worth while to renew discussion with the state authorities of the three or four principal oil producing states, particularly to learn if it is not possible for them to enter upon an interstate compact under the provisions of the Constitution authorizing such compacts, to which the Federal Government, through Congressional action, would be a party. The character of such a compact would need much consideration, but it could well comprise creating a joint board for the purposes of constructive conservation and thus secure the nation from the very real peril that will lie in the reckless exhaustion of our oil resources. With this in view, the board is planning to have Dr. George Otis Smith, on its behalf, visit and interview the governors of three or four dominating oil producing states and learn their views upon such a proposal.

"'It is believed that the above sug-

(Continued on Page 146)

OIL MEN DISCUSS CONSERVATION



—International Newsreel Photo.

Left to right—W. S. Farish, president Humble Oil & Refining Co.; Mark L. Requa of California; Axtell J. Byles, Tide Water Oil Co.; and R. C. Holmes, general chairman of the Institute's committee.

Need Guide to Refinery Operations

National Petroleum Association Discusses More Complete System of Exchanging Data. Forestalling the Code of Ethics

By W. T. Ziegenhain

CAMBRIDGE SPRINGS, Pa., Apr. 27. The establishing of a more complete system of exchanging data regarding refinery operations and the full endorsement of the A.P.I. code of ethics in marketing were presented before the National Petroleum Association at its semiannual meeting here as the logical means of solving the problems of future overproduction of gasoline and ruinous prices in the Appalachian area.

"Gasoline can no longer be considered a by-product by the Pennsylvania refiner whose interest in the past has been centered in the manufacture of lubricating oils. Pennsylvania crude at $4 a barrel and low-priced lubricants available in outside refining areas are going to force us to recognize the fact we are selling 75 per cent of our products at a loss and depending upon the other 25 per cent to carry the load," was the statement by E. M. Lyons, president of the association and president of the Tiona Refining Co., in presenting the situation in his opening address.

Mr. Lyons continued by stating there are two problems that must be solved by the industry and are being given every possible consideration by the association. One of these, he said, is the overproduction of crude oil and the other abuses in marketing practices. The efforts to solve these problems have been given a wholehearted support by the individual companies and the same co-operative spirit was asked from the Appalachian refiners in solving their particular problems.

Forestalling the Code

The Department of Commerce and Trade was featured during the meeting and N. H. Webber, trustee in charge, outlined in a very definite manner how some rather simple statistics might serve as the guide to all in shaping their future refinery operations.

"Knowing in advance how the picture will look at the end of the year is going to mean the difference between profit and loss in the future," he said. He also told how successful the organization of the refiners in the central states, including Illinois, Indiana, etc., has been in getting the individual companies to submit in advance an estimate of their crude runs and gasoline production and how, from the composite of these figures, conditions at the end of the year for that group could be judged pretty accurately.

"Surplus stocks at the close of the year means dumping the next year and the means of averting that situation is to know how you are headed during the year," said Mr. Webber. He also asked the association members to support the code of ethics when approved as the best means of eventually solving the problems of oil marketing.

"You may find a lot of objections regarding the details of the code and these will receive due attention in time, but don't kill the spirit of the code with these trivial objections," he said. "It may take two years before we really see the full benefits of the code after it has been adopted, but we should be willing to work that long to perfect it if it is going to correct a bad condition that has existed for many years and promises to get worse unless something is done."

Mr. Webber further discussed some bad practices that are going on pending the adoption of the code which he said are going to slow up the benefits to be derived from the code after it is adopted. Some companies are going out and securing gallonage pending the adoption of the code. The business is being secured at prices below the general market for these companies feel they can bear a loss for a while, knowing they will be in a good position to hold that business after the adoption of the code. The members were asked to refrain from any such practices.

Statistical Analysis

Statistics and an analysis of economic conditions in the industry over the past 10 years were presented in papers read by L. L. Long, sales manager of the Waverly Oil Works, and N. H. Sanger, Pure Oil Co., which further emphasized the need at this time of a system of exchanging operating data among refiners in order to avert periods of abnormally low prices such as have followed the periods of overproduction so well shown by the analysis of stocks, gasoline production, etc., over that period.

The afternoon session of the first day was turned over to P. S. Tarbox, trustee in charge of the Department of Manufacture for the association, and secretary of the Independent Refining Co. C. R. Wagner, assistant chief chemist of the Pure Oil Co., explained the operation and the development problems of the Gyro process at the various Pure Oil Co. plants and the discussion was of considerable interest since the Pennsylvania refiners are faced with the problem of providing a suitable means of raising the antiknock value of their gasoline. This need was an accepted fact, although some interesting discussion followed a paper read by MacLean Houston, production manager for the United Refining Co., on "Making Better Gasoline" in which he showed the antiknock value of the average Pennsylvania gasoline could be appreciably increased with very little loss in yields by increasing the volatility of the gasoline. He proposed to maintain a control of the 90 per cent point which would bring it substantially below that ordinarily observed in the Pennsylvania plants and then followed by saying it would not be objectionable to include more than the normal amount of heavy ends between the 90 per cent point and the endpoint. He said experiments on the road have justified these conclusions.

Some refiners did not feel the situation in Pennsylvania in regard to the antiknock value of their gasoline was so serious and the statement was made that 500 cars of Pennsylvania gasoline was shipped on one order calling for "antiknock" gasoline last year without a complaint. It was the general opinion, however, that the average Pennsylvania gasoline could be improved in quality and that if the same attention is turned to the manufacture of gasoline that is now being given to the manufacture of cylinder stock and lubricating oils these refiners could show a decided improvement in their gasoline with little added expense for equipment. Similarly, it was pointed out that while there is but little incentive to spend money to improve the gasoline at the present price, this condition will not always exist and it will become a matter of necessity in order to show a reasonable return on refinery operations as competition tends to move further into the Appalachian markets.

Refinery Wastes

Attention was then turned to a discussion of refinery wastes and the work of the Pennsylvania Department of Health was described by W. L. Stevenson, chief engineer for the department, in connection with the pollution of streams. The "Pennsylvania" plan was explained in which it was proposed to employ stringent measures immediately with respect to refiners dumping waste materials into the streams, and pending the vote of the state legislature on this measure the board of health has prepared a much

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Senators Protest Hoover's Policy

Delegation from Western Public Land States Asks President That Leasing Order Be Not Made Retroactive

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Apr. 29.—A group of senators representing states in which there is government land favorable for oil prospecting called on President Hoover asking him to modify his order for oil conservation on the public domain so it might not be retroactive.

The senators who called on the President were Senators Kendrick of Wyoming, Walsh of Montana, Warren of Wyoming, Pittman of Nevada, Bratton of New Mexico and Representative Carter of Wyoming.

Senator Kendrick stated there was a growing feeling in his State against the President's order largely due to the fact that it was more or less retroactive rather than because the people there were against conservation. The senator had suggested to other senators in interested states that they join in a request that the President should make his order effective on the day it was issued so that all permits irrespective of any development under them or any discovery should be treated as if no order had been issued and pending application should be considered and passed upon according to the procedure that existed prior to the issuing of the order.

Mr. Hoover impressed his callers with the idea that he was in sympathy with their points of view. He thought the proper thing was to have the situation carefully studied to avoid any inequities in the treatment of people who had established any right prior to the issuance of the order. They understood that was exactly what he intended when the order was issued.

Senator Kendrick explained to the President that in his judgment the course he suggested would make a very small difference in the effect of the order upon the development of the public domain. Many of the leases have already been forfeited and judging by the percentage of successful exploration in the past the amount of oil that would be discovered and eventually removed as a result of all pending applications would be negligible. In his judgment if the President would make the concession requested at this time his act would be in the interest of his policy of conservation.

From the beginning the President's policy has favored recognizing the rights of all lessees who have complied with the terms of their leases by actual expenditure of money and labor and particularly in cases in which there have been discoveries of oil. The request of the senators will have most effect, if granted, in protecting the rights of lessees who have gone no farther than to make necessary preparations before going on the land and others who have had no time to make preparations and yet have obtained permits.

Senator Walsh of Montana explained that in many cases several permittees having a right to prospect on the same geological formation had jointly formed plans to sink a single test on the assumption that their permits would be extended to permit a further drilling. As the order was understood by them the permits for all sections except that upon which a well was actually drilled would be cancelled. This he contended would operate unjustly as these permittees had acted in good faith and in a correct business-like way in the interest of economical exploration to test a structure without unnecessary duplication of drilling.

The President also had brought to his attention the cases of permittees who had drilled wells at large expense only to find dry holes. These permittees understood the President intended by his order to cancel such permits in spite of the willingness of their holders to continue with the drilling of additional wells in adjacent territory. Senator Walsh thought that as the drilling of such additional wells would be a natural part of the procedure of a permittee prior to the issuance of the order they should be allowed the same opportunity under existing conditions.

Geologists have been employed by some permittees to make investigations prior to beginning any operations. Considerable sums of money have been expended in that way and it was contended that such permittees should have a right to avail themselves of the work of their geologists by drilling to determine whether there was oil on the land they selected.

The views of the President's visitors will be carefully gone over and within the near future they will be informed of any modification of the order the President may decide upon.

SITUATION IN THE WEST

By Tolbert R. Ingram

DENVER, Colo., Apr. 27.—While legal developments, matters of administration policy and possible congressional action involving the Department of the Interior's new oil land leasing policy are centering in Washington, the effects are beginning to show in the public land states involved. Since the order went into effect March 12 rejecting all pending applications for prospecting permits and cancelling permits upon which drilling had not taken place in the specified time, 24 new operations have been started in Lea and Eddy Counties, New Mexico, alone. Some of these have developed into drilling wells since, others have rigs up and are awaiting extensions of permits, while a few are locations only but scheduled to be drilled. It is possible that all of these do not result from the tightening of the requirements of the Interior Department but most of the new wells are being started because of the changed situation.

In addition to the 24 wells starting in the two counties, one company is expected to announce 5 new locations in that area within a few days, another is making 2 more, a third may have to drill 15 wells

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Crude Oil Flows Downward Into Well

Geologist Claims Drilling of Many Dry Holes May Be Avoided as Result of Data Made Available By New Device

That crude oil flows downward into a well from a higher point structurally is but one of the claims made by L. E. Trout, inventor of the Oil Flow Indicator, as a result of tests he has made with the device in 70 wells located in various parts of the Mid-Continent area. The instrument, designed to record the direction of maximum flow of fluid into a well, will be of great aid both to the geological and production departments of oil companies and, through its use, at least 60 per cent of the dry holes drilled can be avoided, according to Mr. Trout. He also says if the device continues to operate as it has done to date there is no reason why more than from 2 to 5 per cent of wells drilled should be dry when the direction of flow, as shown by the indicator, is followed.

The Oil Flow Indicator is a mechanical device composed of a compass and a vane or indicator. The indicator or vane is inclosed in a perforated barrel, which will permit the oil, gas or water to flow through it. The compass is in a sealed box below the indicator. On top of the compass and below the vane or indicator is a vernier. The Oil Flow Indicator weighs approximately 75 pounds, is 4 inches in diameter and approximately 7 feet in length over all.

Method of Operation

In operation, the device is lowered into the well by means of the sand line or bailing line and set on bottom, being centered at the desired point in the hole by adding anchor below the machine, in case there is extra hole below the point which is to be tested. When resting on bottom the vane and compass are unlocked, leaving the vane free to point in the direction of the maximum inflow and leaving the compass free to find Magnetic North. After allowing it to rest on bottom for a varying period of time, the machine is raised to the surface and read. Both the vane and compass are locked in the exact position which they held when resting on bottom, the instant the machine is raised. By means of the vernier, it is then possible to read the exact direction from which the maximum flow entered the hole.

The indicator operates on oil, gas or water or any combination of them. Mr. Trout says it can be used in all wells which are not too large. Actual tests are said to have proved successfu in wells varying in size from 4 bbls. to 600 bbls. per day. He claims there is no reason why tests cannot be successful on any well which is producing oil or gas so long as the instrument can be introduced into the well. It can be used in wells producing more water than oil with the same success, or on wells which produce gas only. Tests have been made in shot holes and in wells in which perforated liners have been set. So long as the Oil Flow Indicator is centered in the liner the magnetic attraction of the pipe is equalized.

What It Does

In outlining what his Oil Flow Indicator does and when the device should be used, Mr. Trout says:

1. It determines the direction of maximum flow of fluid into the well.

2. It will enable the operator to follow the productive horizon, be it lenticular or regular, with the minimum number of dry holes.

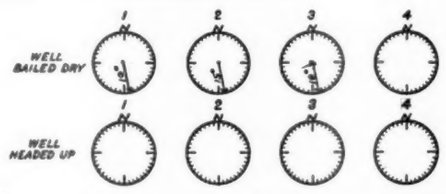
3. It will, because it determines the direction of maximum flow into each hole, be of great value in repressuring work, making it possible to get maximum efficiency by intelligently aiding the natural forces rather than combating them. By doing so it will be possible to recover the largest amount of oil from each area.

4. It will aid geological determinations. In nearly all tests, so far, the Indicator has pointed to a higher point structurally than that at which run, due to the fact that the area of greatest

(Continued on Page 148)

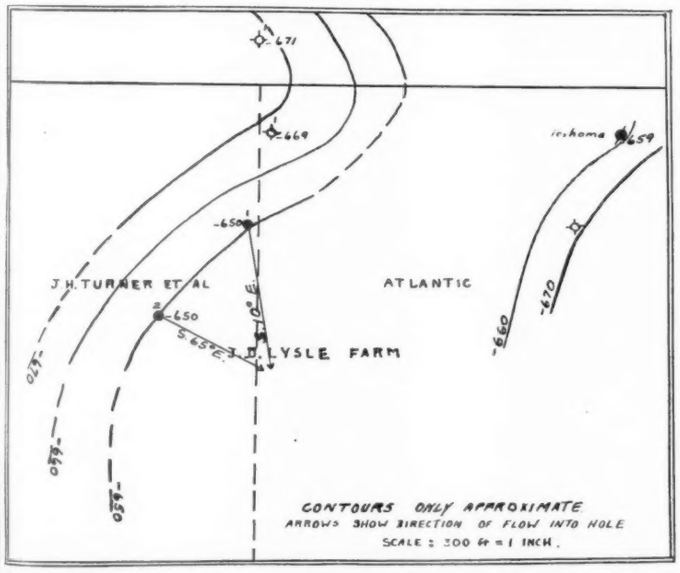
L. E. TROUT & COMPANY
OPERATING
THE OIL FLOW INDICATOR
712 HAMILTON BLDG. PHONE 2-2671
WICHITA FALLS, TEXAS

LEASE J. D. Lysle COMPANY J. H. Turner et al DATE July 10 - 1929
COUNTY Archer STATE Texas



AMT OF SAND 5' WATER None OIL ____ WATER ____ INITIAL PROD. 50 Bbls.
RECOMMENDATION Location 10° East of South - opposite To known subsurface Geology

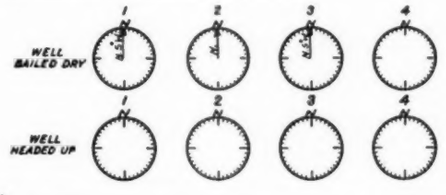
RUN BY L. E. Trout. COMPANY REP. OR OPERATOR ____



Early in January, 1929, J. H. Turner and others drilled a well on the J. D. Lysle which came in initially for 50 bbls. per day. The test was run on this well, the Indicator pointing 10 degrees east of south. The Atlantic Oil Producing Co., following their geological information, moved north a location instead of offsetting directly to the east. It was predicted at the time that their well and that of the Petroleum Producers, 600 feet north of No. 1 Lysle, would be low wells and probably dry. Both were dry, the latter being approximately 21 feet low and the former about 19 feet low. Turner and others' No. 2, located 300 feet south and 300 feet west, picked up the sand at about the same level as in No. 1 and was a producer of about the same size. This plat shows the sand data on the Turner-Lysle lease. Also the results of the Indicator test in well No. 2. Again the high point structurally or the point of greatest pressure was found to be southeast. The subsurface maps were altered after the drilling of the four wells shown, to show the high as predicted by the Indicator and not as formerly drawn.

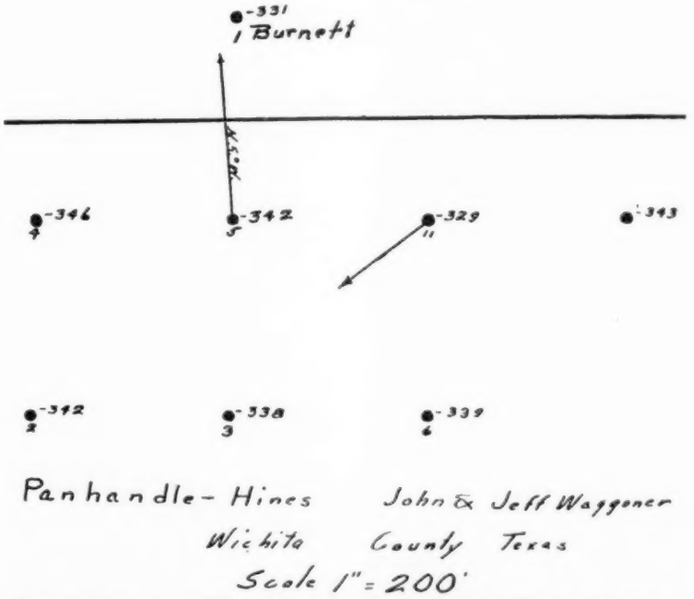
L. E. TROUT & COMPANY
OPERATING
THE OIL FLOW INDICATOR
712 HAMILTON BLDG. PHONE 2-2671
WICHITA FALLS, TEXAS

LEASE John & Jeff Waggoner COMPANY Panhandle - Hines DATE November 1928.
COUNTY Wichita STATE Texas.



AMT OF SAND 10' WATER ____ OIL ____ WATER ____ INITIAL PROD. 40 Bbls.
RECOMMENDATION Location due North.

RUN BY L. E. Trout. COMPANY REP. OR OPERATOR ____



As shown by the arrow from No. 5 well, the well on the location suggested was 11 feet higher structurally and a better well than No. 5. A test run in No. 11 well indicated the flow was coming from the southwest. Therefore, it was predicted that well No. 12 the offset 300 feet east would be lower structurally. No. 12 was drilled later and the sand found 14 feet lower than No. 11.

Simply Couldn't Keep Him Out of Oil

Clyde Alexander Was Knocked Cold the First Day He Worked on a Lease and Later Fire Took Everything He Had, but What of It?

By Thomas F. Smiley

An incident on Clyde H. Alexander's first day in the oil business made him wonder whether he was going to like it. The incident was a knockout. That's no figure of speech. Clyde was laid out cold.

The oil field tyro who was to become vice president and general manager of the Phillips Petroleum Co. was only 13 years old at the time, but he had landed a job as teamster on the Vanderlin farm in Butler County, Pennsylvania. He was sent alone with his horses and wagon to a point 6 miles distant to get a set of bullwheels. The technique of rolling the bullwheels up onto the wagon presented no difficulties for a boy to whom the handling of oil field equipment was a familiar sight and he was on his way back before trouble reared its head.

There were few traveled roads and the itinerary which young Alexander selected as he drove along took him under several "shackle lines." These were pull rods, mounted on A frames, for pumping wells from a central power plant. In some instances the bullwheel perched on the wagon was too high to go under a shackle line. Here Clyde used a stout piece of timber as a lever, and with this resting on the topmost point of the bullwheel as a fulcrum he would start the horses, at the same moment giving his lever a jerk which slipped the pull rod over the bullwheel.

This expedient worked perfectly until Clyde encountered one particularly obstreperous line. As in the other cases he drove up until the pull rod scraped the rim of the bullwheel. Then he got his lever in place, yelled "Giddap!" and gave a mighty tug. The pull rod was lifted over the wheel all right, but as it passed the peak of the stretching operation it got beyond control and before young Clyde could duck, it dealt him a terrific wallop on the head, knocking him unconscious from the wagon.

A Welt and Some Misgivings

Presumably it was only a few minutes later when the boy opened his eyes and rose from the ground with a swelling welt on his head and a vague feeling that maybe he had picked the wrong career. But it takes more than a thing like that seriously to discourage a 13-year-old boy, especially if the boy, as in this case, happens to be endowed with persistence, energy and grit.

The boy whose entrance into the petroleum industry seemed so unpropitious, was born in Millbrook, Mercer County, Pennsylvania, on April 17, 1881. It was on Easter Sunday and 4:30 o'clock in the afternoon, if you've a liking for details. His father, James H. Alexander, operated a sawmill. When Clyde was 9 the family moved to Clintonville, Venango County. Here he continued attendance at the district school for four years, at the end of which time, like most boys of that neighborhood who had attained the maturity of 13, he looked about for a job, getting the one already described. The Vanderlin farm was near Murrinsville, Butler County, about 6 miles south of Clintonville.

Before young Alexander had reached his fourteenth birthday he was put to pumping on the same farm. He had charge of five wells, all pumped by steam piped from a central boiler. The next year he went to work for W. G. Eakin, a producer who was operating on the Gailey farm in the famous Bullion Field in Venango County. In the summers he was employed as a roustabout, tooldresser or pumper. In the winters he worked in the lumber woods, helping in the cutting of timber and running it to the sawmill.

In Charge of 37 Swedes

He was only 17 years old when a trick of fate put him in charge of 37 Swedish lumberjacks. The outfit was at work near Kennerdell on the Allegheny River. The lumber worked up here was being floated down the Ohio and Mississippi Rivers to New Orleans for use in building seagoing boats. The owner of the operations was called away on a western business trip. The woods boss left in charge went on a spree. Young Clyde, who was timekeeper, was the logical person to take over the reins of government, which he forthwith did. As woods boss pro tem, he had to select the timber to be cut for masts, spars, etc., and attend to its delivery to the mill at Kennerdell.

One Saturday night when the Swedes had absorbed enough whisky to become belligerent, some of them manifested dissatisfaction over taking orders from a 17-year-old boy. A big fellow known as Oscar declared for the benefit of all whom it might concern that he could lick the boss. Clyde knew in his soul that Oscar could do that very thing, but this did not prevent him from announcing that the time and place were unsurpassably appropriate for Oscar to demonstrate that he was not indulging in a mere rhetorical fight. Oscar immediately proved in a thoroughly convincing manner that his words were full of truth. Clyde flailed vigorously as long as he could stand on his feet and see. That wasn't very long though, and in a few minutes the acting woods boss lay on the bunkhouse floor, a breathless, bruised and beaten young man.

Satisfactory to Oscar, but—

The outcome of this encounter was so highly satisfactory to Oscar and his allies that on Sunday night, when most of the Swedes had either liquored up again or were in a pugnacious mood as a result of hangovers from the preceding night, there were evidences of further bellicose demonstrations. Clyde was in no condition for any more hostilities. He yearned for peace, but things looked black. Help came from an unexpected quarter. When contemptuous gibes and thinly veiled challenges were directed at Clyde, Oles Nelson, recognized as the most dangerous fighter among the whole crew of 37, issued a pronunciamento: "Now, look here. The kid's game. He done the best he could and it wasn't so damn bad, either. If there's going to be any more fighting, it'll be with me. If anybody's hankerin' for a little exercise, come on."

There was no response. The lust for battle on the part of Oscar and his friends vanished. After that Oles Nelson had no sturdier friend than Clyde. The drunken woods boss, his money spent and his spree ended, happened to return to the lumber camp the same day that the owner came back from his western trip. On finding out what had occurred, the returning employer fired the derelict boss and told young Alexander to continue in the job he had assumed. Clyde finished out the winter as woods boss.

The succeeding summer Clyde dressed tools and the next winter he ran a sawmill for Jim Greenleaf, a lumberman of that region. There followed several years of work off and on for Rev. J. M. Critchlow and others. Mr. Critchlow, a Free Methodist minister of Titusville, Pa., had been fortunate in his first drilling ventures in the Bullion Field. He expanded his oil operations as his cash capital grew and organizing a company he put down several hundred second-sand wells in the Bullion Field in seven or eight years. This minister held the respect of the men who worked for him. He was not a preacher only. In his business activities he practiced what he preached. He is said to have been the first oil operator in western Pennsylvania to provide really comfortable bunkhouses for workmen.

He Must Have Been Good

A teamster for Mr. Critchlow's company who went by the name of Doc had earned the reputation of being the most profane man in the oil country. He was rather proud of this reputation and boasted that he could "swear rats away." He was warned by fellow workmen that it would not be wise for him ever to allow the minister to hear him cursing.

One winter day Doc was hauling a drill stem on his wagon. On Bullion Hill the wagon upset. The drill stem, breaking the chain which had held it in place, rolled down the hillside and struck a big pine tree with such force that the stem was bent into the shape of the letter U.

Doc stood silent for a moment and surveyed the wreck. Then he launched into what oil country historians declare was a marvelously executed job of swearing. Doc scaled heights of malediction that he never had touched before. The crisp winter air crackled with strange, blood-freezing imprecations. Addressing himself to the drill stem, the horses and the wagon in turn, Doc delved down into the past and wrenched out dark and shameful secrets concerning the character and the ancestry of each. He applied blistering, blasphemous epithets to the luck or lack of it, that had caused the accident. By way of climax he consigned the whole outfit to a specially devised damnation whose horrors he dwelled upon with flaming adjectives that were a revelation even to Bullion Hill.

As he paused exhausted and looked around whom should he discover standing nearby and listening to his vitriolic outpourings but Mr. Critchlow. Doc expected nothing else than summary discharge, and he needed his job. He waited for the words that would cut off his weekly pay and end for him what he knew were the best working conditions and squarest treatment to be found in any oil field at that time.

Maybe He Knew How Doc Felt

"I never knew a man," the minister began, fixing Doc with a gaze of keen appraisal—"I never knew a man who could swear so beautifully."

It was several moments before the truth sank into Doc's consciousness. He blinked dazedly at the preacher and made fruitless efforts at articulation before he brought up any sound from his throat. Then he expressed as well as he could his penitence and his gratitude. Doc continued right along on his old job, and from that day until his death it is said of Doc that he never uttered an oath.

In November, 1904, lured by reports of the oil boom in Kansas and Oklahoma, Clyde went West. His first objective was Independence, Kans. He ar-

(Continued on Page 72)

THAT WAS A VERY GOOD FIRE, THANKS

When St. James wrote, "Behold how great a matter a little fire kindleth," maybe he had a hunch that some 2,000 years later a little fire would transform the whole life program of a man holding a humble job in the Osage oil field. This fire was Clyde H. Alexander's own private little conflagration. He appears to have been very exclusive about such things. At the time he didn't see anything prophetic or epochal in it. It was just one of those things, quite barren of either good or evil portent.

Clyde H. Alexander

The conventional fire of the newspaper reports, in which "the inmates escaped in their night clothing with a few hurriedly collected belongings," is a kindly, thoughtful, compassionate sort of fire in comparison with this one, which didn't leave the victim so much as the tail of a nightshirt.

But that fire kept Clyde Alexander in the Osage by the simple expedient of robbing him of the means of getting out of it. And it was in the Osage that his opportunity lay, though he couldn't know it. Thenceforth his course lay straight along the pathway of advancement. The young oil field worker had a chance to show what he could do and he made good.

If at any time Mr. Alexander felt that things weren't moving as fast as he'd like to have them he didn't begin striking matches around the gasoline tank. He had the good sense to let well enough alone. It's safe to say, however, that he never has ceased to congratulate himself on the fact that there was no fire department in the Osage in the early days.

It is hoped that reference to this incident in the life of one of the Mid-Continent's best-known oil men will not start a wave of incendiarism, and by way of warning it might be pointed out that while a fire did the business in Mr. Alexander's case, a nitroglycerin factory explosion wouldn't get some folk going.

Determining Value of Pipe Coatings

Three Necessary Characteristics. Limiting Circulation of Corrosion Products. Methods of Testing and Inspection

By K. H. Logan*

Specifications for the preparation, application and testing of a protective coating for a pipe line were written in 1874[1] and perhaps much earlier.

Frequently men have attempted to define a satisfactory coating, usually by specifying its properties. In reality there are about three necessary characteristics for a coating. It must prevent corrosion for a time, be practicable as to application and sufficiently inexpensive to justify its use.

Considering first the prevention of corrosion, it will be generally agreed that this would be accomplished if the coating remained impervious to moisture. To what extent this quality is essential is a matter for debate.

It is possible that it is not necessary to prevent the absorption of moisture, but merely to limit its circulation or the diffusion of corrosion products so that after the moisture has become saturated with iron in solution and a certain amount of insoluble iron salts has been formed a state of equilibrium is established and corrosion progresses no further. In the laboratory it is possible to surround the iron with corrosion inhibitors or passivating agents or to prevent corrosion by cathodic protection.

Data on the practical value of these methods are conflicting and inconclusive. Their success or failure apparently depends on local conditions and why they succeed or fail is often a matter not subject to proof. On the other hand, there is some evidence that a coating should be continuous and electrically insulating.

Table 1 shows the depth of the maximum pit on a 10-inch length of bare 3-inch open hearth steel pipe and on 8-inch length of 2-inch open hearth steel pipe originally coated with a heavy layer of coal tar pitch in 30 locations. The two specimens were buried in the same trench for the same time. In some but not in all soils the pitch coating flowed and left the pipe bare or nearly so in spots. The specimens were buried approximately four years. It is not possible to determine the time when failure of the coating took place. Although the coating completely protected the pipe in only a few soils for the four-year period, in most instances the pitting was less on the coated pipe. In seven soils, however, the corrosion was worse on the coated pipe than on the bare pipe. This has been taken to indicate that the local failures of the coating accelerated the corrosion.

Studies of Corrosion

Recently two studies of the causes of corrosion[2] on oil lines have resulted in data tending to show that when a line passes through two different soils a galvanic cell is set up and corrosion results at the anode. Obviously this would be prevented if the line were protected by a coating which was an insulator. Such a coating must absorb no water.

The data in Table 1 and the relation just mentioned of corrosion to current on the pipe suggest the desirability of a continuous insulating coating. Most tests of bituminous coatings are built around this idea although the ways in which tests are made differ widely. Obviously the purpose of a test is to determine how the coating will behave under some field condition which it may encounter when applied to a pipe line. It follows that the nearer the test simulates actual working conditions the better. But the determination of the life of the superior coatings under initial conditions is a matter of months or perhaps years and it is very desirable that a more rapid method be available. Whatever this method, to be of value it must correctly foretell results under the field condition to which the coating is to be exposed and since these field conditions differ widely and failures occur from widely different causes it will always be necessary to know the field condition before the proper accelerated test can be selected.

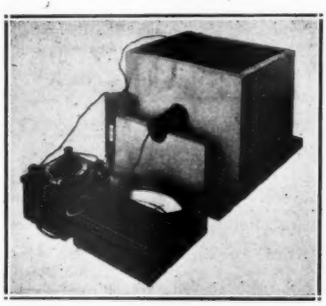


Figure 1.—Apparatus for testing pipe coatings.

TABLE 1

Comparison of Pittings on Bare Open Hearth Steel Pipe With That of Pipe Protected by Coating No. 13 (Heavy Coal Tar Pitch)

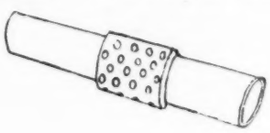
Location—	(*) Bare pipe	(*) Coat'd pipe
Alexandria, Va.	26	20
Atlanta, Ga.	56	22
Bakersfield, Calif.	73	33
Baltimore, Md.	55	37
Buttonwillow, Calif.	135	72
Camden, N. J.	No Pits	No Pits
Cleveland, Ohio (Allis)	38	62
Cleveland, Ohio (Mahoning)	No Pits	37
Davenport, Iowa	No Pits	34
Denver, Colo.	62	3
Des Moines, Iowa	48	32
Elizabeth, N. J.	100	Failure
Fargo, N. D.	64	15
Jenkintown, Pa.	36	6
Kansas City, Mo. (Summit)	41	13
Kansas City, Mo. (Marshall)	40	14
L. Angeles, Calif. (Ramona)	24	20
Middleboro, Mass.	No Pits	18
Milwaukee, Wis. (Peat)	33	23
Milwaukee, Wis. (Miami clay loam)	32	13
Mobile, Ala.	48	28
New Orleans, La. (Muck)	88	37
Norristown, Pa.	27	26
Norwood, Mass.	No Pits	No Pits
Omaha, Neb. (Knox)	57	33
St. Paul, Minn.	63	12
Salt Lake City, Utah	No Pits	No Pits
Sidney, Ohio	59	10
Springfield, Ohio	45	7
Wilmington, Del.	24	62

*Depth of the maximum four-year pit (mils.)

Accelerated Tests

Accelerated tests may be divided into two classes, first, those which hasten the failure of the coating by imposing more severe conditions, and second, those in which conditions are normal but the means of detecting incipient failure are more than usually sensitive. The first class of accelerated tests both in the laboratory and in field plots usually involve abnormal conditions such as the application of electrical stress or increasing the destructive properties of the soil far beyond normal conditions. Such tests are dangerous until their relation to normal conditions can be determined. It can be shown that different accelerated tests give different results on the relative merits of materials tested. A material resisting one test condition may fail quickly under another and neither test may be closely related to the field condition under which the coating is to be used.

In some soils the destructive element is active only a small part of the time, as for example, immediately after a rain, when salts in solution reach a certain concentration, or in the course of a cycle of expansion and contraction of colloidal soils when wet and dried. The time required for obtaining results under such conditions can be reduced by shortening or eliminating the nondestructive periods.



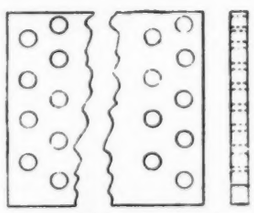


Figure 2.—Apparatus for field testing of protective coatings.

The other method of shortening the time required to determine the value of a coating is by the measurement of slight indications of deterioration. The nature of the test will of course depend on the character of the coating and what is considered a satisfactory condition. Since it is generally agreed that a coating which excludes all moisture will protect a pipe line, in the absence of definite information on the value of coatings not meeting this condition, it may be well to take the rate and extent of the absorption of moisture as measures of coating value. For bituminous coatings this assumption permits the use of a very delicate and easily made test, the sensitiveness of which can be varied at will.

Since dry bitumens possess a high specific resistance, the determination of the change in resistance of the coating with exposure to moisture will indicate the absorption of moisture and, on the basis of the assumption made above, the deterioration of the coating. Electrical resistance measurements, if made with suitable instruments, will indicate very small changes in the moisture content of a coating initially free from moisture.

TABLE 2

Effect of Moisture on Resistance of Protective Coatings for Pipes

Resistance of coatings—ohms per square foot

Date of test—	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
6-20-27	*185,000,000	.....	....	.....	.....	.....
1-30-28	.....	*80,600,000	....	.....	.....	.....
7-13-28	.....	.....	(†)	.....	.....	.....
7-26-28	231,800	20,170,000	1,350	.....	.....	.....
8-28-28	9,940	1,980	150	.....	.....	.....
9-21-28	6,520	1,220	84	*57,000,000	.....	.....
9-24-28	.....	.....	....	.....	*81,000,000	.....
9-28-28	.....	.....	....	.....	.....	*988,000
10-1-28	7,710	1,267	140	.....	.....	204,000
10-16-28	7,840	1,555	213	56,800,000	744,000	108,000
10-27-28	15,445	1,555	242	406,000	341,000	76,400
11-1-28	13,050	1,555	189	163,000	255,000	79,500
11-7-28	15,850	1,555	242	104,500	177,000	31,200
12-5-28	10,170	1,365	16.9	177,000	44,200	20,100
12-18-28	10,170	.....	....	202,000	26,900	29,600
1-26-29	13,450	2,710	....	12,950	13,800	62,800
3-1-29	7,670	1,555	....	14,040	2,650	42,700

*Initial reading at the time the specimen was placed in the moist soil. †Test started. No reading taken on this date.

Methods of Testing

Based on this principle there was started at the Bureau of Standards a few months ago a series of tests of protective coatings, the purpose of which was the development of a method of testing rather than the determination of the value of the coatings under study. The coatings were samples sent to the Bureau on various occasions for different purposes. Tests of individual specimens differed somewhat because of slight modifications of method as the work progressed and because the pipes to which the coatings were applied were of different lengths and diameters. The plan was to expose the central portion of the coated pipe to moist soil and to measure from time to time with a microammeter the current produced by a dry cell. The resistance of the coating was then computed. Figure 1 shows the arrangement of the test. Table 2 gives the resistance of the coating in thousands of ohms per square foot of surface exposed to the soil.

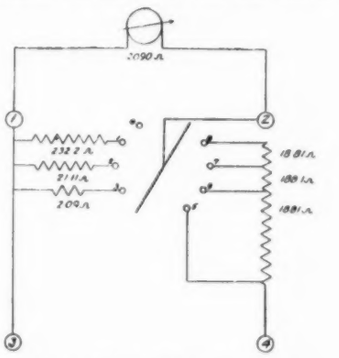


Figure 3.—Wiring diagram of ammeter multiplier.

Coating No. 1 is a heavy coal tar pitch enamel.

No. 2 is a German coating consisting of a loosely woven cotton fabric impregnated and coated with a heavy greaselike material containing some inert matter. Three thicknesses of fabric were applied spirally to the pipe with laps of about one-fourth inch.

Coating No. 3 is sold as a protection against electrolysis. It is applied cold. The pipe first receives a priming coat of bituminous paint. Over this is wrapped spirally a loosely woven cotton fabric previously impregnated with a coal tar preparation. The wrapped pipe is then given a coat of bituminous paint.

Coating No. 4 is a mill-applied, asphalt impregnated cotton fabric. The pipe receives a hot dip priming coat after which it is rotated over a vat of asphalt and the fabric wrapped on spirally after passing through the vat. It is understood that the coating now being applied in practice is somewhat thicker than the coating under test.

Coating No. 5 consists of several layers of sulphur-impregnated cloth wrapped on the pipe. Details as to the process have not been furnished. The sample is a laboratory product.

Coating No. 6 is a shop-applied, machine wrapped coating. The pipe first receives a priming coat of bituminous

(Continued on Page 87)

*Publication approved by the director of the Bureau of Standards of the United States Department of Commerce.

[1]Report on Steel Plate Conduit II of the Rochester Waterworks. J. F. Skinner. 1913.

[2]Western Gas, vol. 4, No. 10, p. 22, Corrosion of Pipe Lines by K. H. Logan, L. F. Athy and C. T. Langford.

Conditions in Operation of Gas Lift

Manner in Which Gas Expansion Is Accomplished Is Matter of Interest in Studying Mechanics of Operation

Prepared by R. H. Pence for the Bessemer Gas Engine Co.*

It has been observed from the foregoing discussion of the lift that the oil is raised as a result of the expansion of the compressed gas. The manner in which this gas expansion is accomplished is therefore a matter of interest in studying the mechanics of operation of the lift.

A given weight of gas in expanding from a high pressure to a lower pressure, increases its volume; this volumetric increase, taking place against any external resistance such as the pressure of the atmosphere or of a column of fluid, performs an amount of work which varies with the existing conditions and with the method of expansion. For this expansion to take place there must be an available supply of heat, either external or internal, to the expanding gas.

[1]Work done by a substance is always done at the expense of its heat, and while doing work the substance may be receiving heat or it may not. If no heat is being added at the time the work is being done, that work is derived directly from the heat content of the substance and as a consequence the heat content is lessened or the energy reduced by an amount exactly equivalent to the work done. Should heat be added while work is being done, the change in the energy content of the substance is the difference between the heat added and work simultaneously done.

[2]In the case of an expansion taking place where external heat is supplied to exactly replenish the internal heat which has been converted into the work of expansion, the temperature of the gas will remain constant and the expansion is called isothermal. Therefore, when gases expand isothermally the heat added is equal to the work done in the same units or the work done in foot-pounds is equal to the heat added in foot-pounds. This is equivalent to saying that the internal energy remains constant and heat is converted directly and completely into work as fast as added during isothermal expansion.

In the case of an expansion taking place where heat is neither received from nor given out to any outside substance, the work of expansion is done entirely at the cost of internal energy of the gas, and consequently upon this extraction of heat, the temperature of the gas falls during expansion. This style of expansion is called adiabatic.

Exponential Expansion

In practice neither of these types of expansion exist; the actual expansion may approach either ideal type depending upon the existing conditions, but as far as an oil or gas well is concerned, the process is intermediate to the two ideal types; the name "exponential" expansion being given to this general intermediate type. For instance, a dry gas well blowing to the atmosphere will approach the adiabatic type of expansion because the velocity is so great that the mass of the gas will have very little time in which either to give up or receive any heat from the casing, tubing or surrounding formations; the work of the expansion is therefore accomplished by the expenditure of the internal energy of the gas and this extraction of heat from the mass of the gas causes a lowering of its temperature. On the other hand, a well producing oil with a low oil-gas ratio or gas factor, approaches the isothermal type of expansion because the flow is at a much lower velocity, and as the work of expansion is performed by the entrained gas which during the process is surrounded or rather contained in the mass of oil, the heat necessary to accomplish the work of expansion is taken from the body of oil and surrounding masses rather than from the gas itself. There will result in practice a slight lowering of the temperature of the system the mixture of gas and oil, but practically this will be the nearest approach to the isothermal type which, as stated above, means a constant temperature process. In the vast majority of actual cases in practice, the expansion is of the exponential type; that is, it is intermediate in type between the two ideals; the proportion of gas to oil will vary in degree from just enough gas in the oil to cause a flow, to the case where the finest kind of a mist of oil is present in a large flow of gas.

Formula for Different Types Expansion

In order to apply these principles to working conditions and utilize the ideas, the quantitative relationships as adopted from Lucke's Engineering Thermodynamics will be stated

V_1 = (Smallest vol.) initial volume of gas in cubic feet.
V_2 = (Largest vol.) final volume of gas in cubic feet.
P_1 = (Highest pressure) initial pressure of gas in pounds per square foot absolute.
P_2 = (Lowest pressure) final pressure of gas in pounds per square foot absolute.
W = Work in foot pounds.
K = A constant.
T_1 = Temperature degrees Fahrenheit absolute for state (1).
T_2 = Temperature degrees Fahrenheit absolute for state (2).
R = The gas constant ($=P_1V_1/MT_1$).
M = Weight.

"Any given quantity of gas or vapor confined and not subject to extraordinary thermal changes, such as explosion, will suffer regular pressure changes for each unit of volume change, or conversely, suffer a regular volume change for each unit of pressure change so that pressure change is dependent on volume change and visa versa. When the volume of a mass of gas or vapor V_1 is allowed to increase to V_2—the pressure will regularly decrease from P_1 to P_2, and experience has shown that no matter what the gas or vapor or the thermal conditions, if steady, the volumes and pressures will have the relation for the same mass,

$$P_1 V^s_1 = P_2 V^s_2 = K.$$

or the product of the pressure and s power of the volume of a given mass will always be the same. The exponent s may have any value, but usually lies between 1 and 1.5 for conditions met in practice. The precise value of s for any given case depends on:

(a) The substance.

(b) The thermal conditions surrounding expansion or compression, s being different if the substance receives heat from, or loses heat.

(c) The condition of vapors as to moisture or superheat when vapors are under treatment.

Values of s in the equation PV^s = Constant, for various substances and conditions.

From Lucke (with additions)

Substance and type of expansion—	s
All gases, Isothermal	1.000
Air, Adiabatic	1.407
Carbon Dioxide (CO_2), Adiabatic	1.300
Hydrogen (H_2), Adiabatic	1.410
Hydrogen Sulphide (H_2S), Adiabatic	1.276
Methane (CH_4), Adiabatic	1.316
Nitrogen (N_2)	1.410
Typical Dry Natural Gas, Adiabatic	1.20 to 1.29

From the above equation and others, the relationships between the various quantities, pressure, volume and temperature, have been derived and are shown in the following table:

Related quantities for exponential and adiabatic changes in gases and dry vapors:

1. P and V $\quad \frac{P_1}{P_2} = \left(\frac{V_2}{V_1}\right)^s$

2. P and T $\quad \frac{P_1}{P_2} = \left(\frac{T_1}{T_2}\right)^{\frac{s}{s-1}}$

3. V and T $\quad \frac{V_1}{V_2} = \left(\frac{T_2}{T_1}\right)^{\frac{1}{s-1}}$

General exponential change:

1. $\quad \frac{V_1}{V_2} = \left(\frac{P_2}{P_1}\right)^{\frac{1}{s}}$

2. $\quad \frac{T_1}{T_2} = \left(\frac{P_1}{P_2}\right)^{\frac{s-1}{s}}$

3. $\quad \frac{T_1}{T_2} = \left(\frac{V_2}{V_1}\right)^{s-1}$

These equations apply to all possible changes and types of expansion, by using the proper value for s. For isothermal expansion s=1 and therefore those equations containing T automatically drop out. The general equations involving the item of work are as follows:

Isothermal expansion (s=1):

$$W = K \log_e \frac{V_2}{V_1} = K \log_e \frac{P_1}{P_2}$$

where

$$K = P_1V_1 = P_2V_2$$

For adiabatic expansion the value of s is the ratio of the specific heats of the gas. Thus $s = \frac{C_p}{C_v}$

For exponential expansion s may have any value other than 1.

$$W = \frac{P_2V_2}{s-1}\left[\left(\frac{V_2}{V_1}\right)^{s-1} - 1\right]$$

$$W = \frac{P_2V_2}{s-1}\left[\left(\frac{P_1}{P_2}\right)^{\frac{s-1}{s}} - 1\right]$$

$$W = \frac{P_1V_1}{s-1}\left[1 - \left(\frac{V_1}{V_2}\right)^{s-1}\right]$$

$$W = \frac{P_1V_1}{s-1}\left[1 - \left(\frac{P_2}{P_1}\right)^{\frac{s-1}{s}}\right]$$

An average value for s that is used to considerable extent is 1.25.

Pressure Decrease Within Eductor

A volume of gas under a given pressure is usually referred to as the volume of free gas at atmospheric pressure under said pressure. It follows then that the actual effective volume under the given pressure is much smaller than its volume at atmospheric pressure.

As the gas expands and travels up

(Continued on Page 172)

*This is the second of a series of articles on air and gas lift. The first article of the series was published in the April 18 issue of The Oil and Gas Journal.

[1]Engineering Thermodynamics, Lucke, McGraw-Hill Book Co.

[2]Subsurface Problems of Applied Thermodynamics, W. H. Osgood, Oil Weekly, April 22, 1927.

LARGE ATTENDANCE IS EXPECTED AT KANSAS CITY GAS CONVENTION

Kansas City will be the Mecca next week of what is expected to be one of the largest gatherings of natural gas men ever assembled, if hotel reservations are any criterion. The occasion will be the annual convention of the Natural Gas Department of the American Gas Association and the annual exhibit of natural gas equipment. From every section of the United States natural gas company officials, engineers, field superintendents, heads of sales and distribution departments and those associated with the public relations work have indicated they will be among those present when the convention opens next Monday morning. The meeting will continue through next Thursday with the annual banquet scheduled for next Wednesday evening.

An interesting program has been prepared for the convention, covering all phases of the industry from the production of natural gas through the measurement, transportation and distribution and down to the proper utilization in the home. Field problems will be discussed and one of the sessions which is expected to attract most interest is the "Question Discussion" to be conducted next Wednesday by Frank L. Chase of the Lone Star Gas Co.

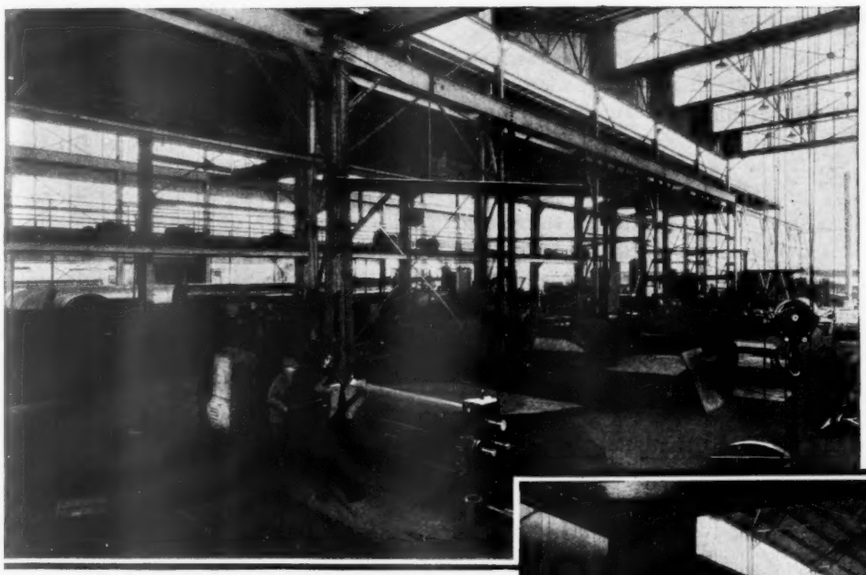
The relation of the natural gas industry to the public, the state and to the nation as a whole will be discussed by different speakers at the convention. The motto of the industry "Service" will enter largely into all addresses and papers, an example being the subject assigned Ralph W. Gallagher, president of the

(Continued on Page 137)

Samuel W. Meals

President, Carnegie Natural Gas Co., and chairman, Natural Gas Department, American Gas Association.

REFINERY EQUIPMENT *and* COMPLETE REFINERIES



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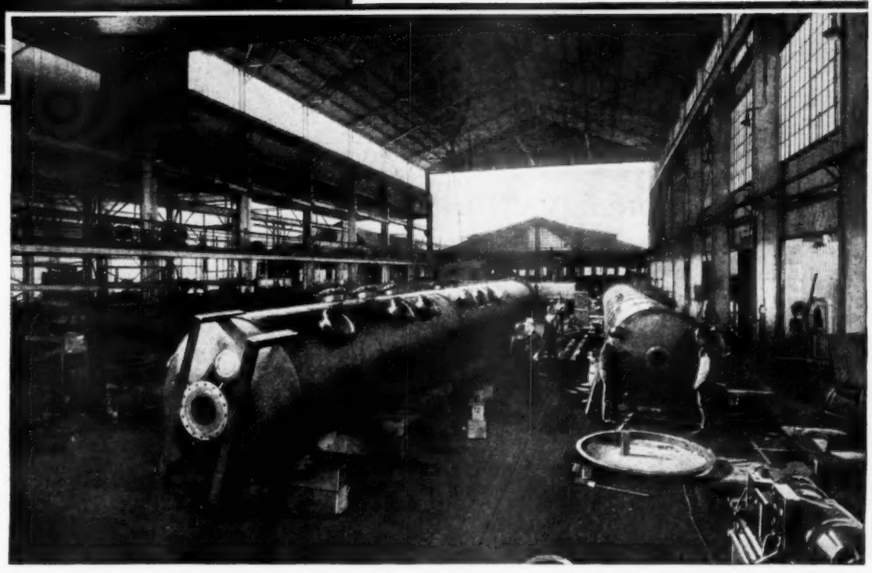

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HOW CONSERVATION STANDS

There is no need to be discouraged about the conservation movement. It must go forward because everyone recognizes it is impossible to go back to the old conditions in the oil industry.

Even the administration at Washington urges the industry to renew its efforts to conserve our oil supply and the Federal Oil Board has instructed a representative of the Government to visit the governors of the principal oil-producing states to seek their co-operation in the movement.

The Government is vitally interested for two specific reasons. The maintenance of our oil supply is essential for the national defense. If the Allies "floated to victory on a sea of oil" how indispensable has oil since become with the world's increasing dependence on motorization on sea and land and in the air?

We may hope that the necessity for national defense may be remote, but the Government is as deeply interested in the maintenance of our oil supply for the continuance of our peace-time progress and prosperity. We have only to look around us to realize how dependent American industry and trade have become upon the motor vehicle. Getting along at our present pace without gasoline would be unthinkable. Our superiority among the nations is largely due to our universal use of oil.

But the Government as the guardian of the public welfare has an even wider interest in our oil supply. The great automotive industry, the iron and steel industry, important states, whole communities, whose progress is of immediate concern to the Nation and to the Government, would be immediately affected by any material diminution of our oil reserve.

This is thoroughly understood by the Government as repeatedly stated by the Federal Oil Board which has been insistent upon the industry doing everything it can to conserve our supply.

The Government itself, through the Federal Oil Board, has confessed its inability under existing laws to remedy the situation. Its suggestion of an Interstate Compact in which the Federal Government might join was made in a sincere desire to aid the industry. Impractical, perhaps, though it may appear, the industry owed it to the Oil Board to accept the offer.

That was the meaning and the effect of the action of the directors of the American Petroleum Institute at New York. In the meantime, of course, the general plan of the institute will be held in abeyance, but the units of the industry in the various states will continue their efforts to promote conservation within the industry.

These efforts must be continued because without them there would be a complete collapse of all that has been accomplished towards conservation. It would throw back the industry into the chaos of unrestrained competition which brought on the flood of overproduction that called forth the Government's demand that the industry put its house in order.

It will not be safe to assume that because the Federal Oil Board has no present authority and the proposed Interstate Compact may never be realized that public opinion will tolerate a return to the conditions which led President Coolidge to take action.

The reports of the Federal Oil Board and the discussion of the institute's plan presented at Washington have convinced the public that the overproduction of oil menaces our national reserve. Defiance of that opinion through renewed overproduction will provoke, almost certainly, complaint to Congress and action at Washington which the industry will do well to avert.

The statement that the administration is opposed to government regulation because it would mean price fixing might be swept aside by a popular revulsion that would demand some sort of control if the industry fails to develop it.

That is the possibility that should be ever present in the thoughts of the industry. In this day and age the power of popular sentiment cannot be ignored, particularly as affecting a commodity of such general consumption and everyday use.

That is the public aspect of it, but the industry is just as much concerned, or should be, for the effects of overproduction upon the industry itself.

There is a lot of timidity which prevents frank discussion of the situation. All admit that oil is worth more, but some say it is impossible to ask more if production is not allowed to run wild, because it may be charged by the uninformed that any increase would be due to restraint on production.

If that argument is sound, then we will simply go on overproducing until our oil begins to disappear and pay a lot more for what is left than we would have paid if we had conserved and prolonged our supply at a reasonable price.

Both the industry and the public will be the losers by that wasteful policy.

A stabilized oil industry will assure the country a steadier and longer supply and at a more reasonable cost than any possible period of wild fluctuation between surplus and famine.

The industry's efforts to check overproduction have been made at great immediate sacrifice, particularly by the leaders and the larger companies who have striven to show the need for co-operation for the common good.

This has been specially true in California where the movement is now at its critical point, the larger companies endeavoring by example to enlist the support of the minor operators in an effective conservation program.

Much depends upon the attitude of Oklahoma and Texas. If the reluctant operators in California think the operators in either of these two states are likely to lessen their efforts the effect must be to weaken support for the new program on the Pacific Coast.

The conservation movement has had one crisis after another since its inception at Seminole, but it has gone surely forward because it appealed to the common sense of the industry. Any weakening upon the part of the industry at this stage when the Government, through the Federal Oil Board, is actively endeavoring to enlist the co-operation of the executives in oil-producing states would put the industry in an embarrassing position, impeaching in the public mind the sincerity of the whole movement.

The effect can be easily imagined—renewal of the suspicion and hostility, which the industry has been slowly overcoming during the past five years.

Can the industry afford to run that risk?

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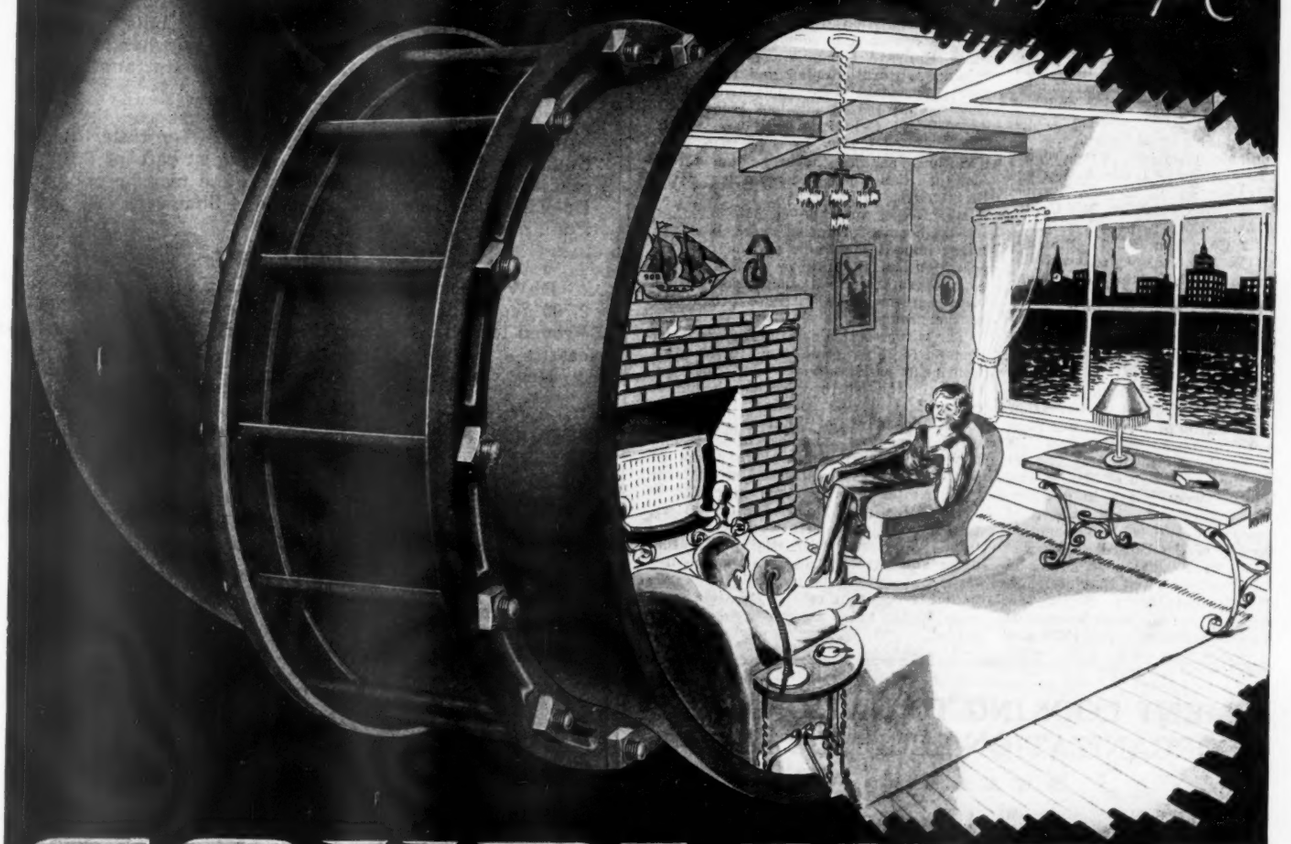

COUPLINGS

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OKLAHOMA CORPORATION COMMISSION EXTENDS PRORATION UNTIL MAY 15

By James McIntyre

The Oklahoma State Corporation Commission on Tuesday afternoon extended the Greater Seminole proration period 15 days commencing May 1. The commission had been asked to extend the order until June 1.

Oklahoma oil producers on February 5 adopted a plan of curtailment of crude oil production in the state in which it was proposed to keep production down to an average of 650,000 bbls. per day, and the Greater Seminole Field was selected as the area in which curtailment should be made effective by means of a proration of runs. The plan was to be in effect until May 1. It met the approval of the State Corporation Commission, which made it an order, and Ray M. Collins was appointed as conservation officer and umpire. Early in April a meeting of Seminole operators was held in Tulsa at which it was decided to extend the period of proration to June 1 with the approval of the Corporation Commission. A hearing was asked for and the commission set April 29 as the day on which the producers could be heard.

The Seminole producers were represented at the meeting by James A. Veasey, Carter Oil Co.; E. B. Reeser, Barnsdall Oil Corp.; J. C. Denton, Mid-Continent Petroleum Corp.; Ben C. Conner, Papoose Oil Co.; and H. L. Stalcup, Skelly Oil Co. Mr. Veasey presented the case of the producers to the commission.

Mr. Reeser's Testimony

E. B. Reeser, president of the Barnsdall Oil Corp., and president of the American Petroleum Institute was the first witness. Mr. Reeser related to the commission the American Petroleum Institute's program for world conservation and stabilization of production. Oil companies representing 95 per cent of the production of the United States and 90 per cent of the production of Mexico and South America were joined in a movement to maintain production at a level with consumption, he said. The potential production of the United States was from 300,000 to 500,000 bbls. a day in excess of consumption and that of South America 100,000 bbls. in excess. Mr. Reeser explained to the commission that the refinery requirements for 1929 and for several years to come could be taken care of with a production of crude oil no greater than that of last year and that the plan agreed upon by the American Petroleum Institute was to keep production down to the 1928 level. To do this Oklahoma would have to co-operate as it is one of the three producing states with an excessive potential production. Seminole operators had agreed to bear the burden of curtailment thus far.

The commission was asked to extend the Seminole proration movement until June 1. If further proration was found necessary it was the intention to petition the commission to extend it after June 1 to all pools in the State with large flush production, Mr. Reeser said.

Other States Co-operating

The commission was told that Texas producers with the co-operation of the State Railroad Commission were maintaining a proration plan and that California operators were voluntarily shutting in, but that a bill had been introduced in the California legislature which would afford a way to cope with such situations as the industry now faces, and that this would become a law within 90 days.

Mr. Reeser told the commission that if Oklahoma's proration were lifted it might imperil the whole plan of oil conservation, as the failure of one region to co-operate releases other regions from their agreement to conserve production in the ground.

The witness explained the current overdemand for high grade crude in the Mid-Continent with the statement that refiners in the North were over-manufacturing and storing gasoline. In the so-called Standard of Indiana territory, which comprises a number of large and populous Central states, there was a 54 per cent increase of gasoline stocks over the same period a year ago, he said.

Ray M. Collins, conservation officer, testified to the satisfactory results obtained thus far under the conservation order and gave figures to show the difference between the potential and the actual production of the Greater Seminole Field. His figures went unchallenged.

MOVEMENT LOOKING TO NATIONAL ORGANIZATION BEGUN BY SCOUTS

By W. A. Spinney

Consolidation of the Mid-Continent Oil Scouts and Land Men's Association with the National Oil Scouts Association may be effected in the ensuing year as the result of steps taken at the annual meeting of the first-named organization in Wichita, Kans., last Friday and Saturday. The newly elected officers of the Mid-Continent association, acting in conjunction with the new board of directors soon to be chosen by these officers, were authorized to take such action as they may deem best.

It was pointed out that if the two bodies named and the California Oil Scouts Association were merged the resulting organization might become affiliated with the American Petroleum Institute, thus adding to the prestige, standing and influence of scouts and land men in the oil industry. While the advantages of affiliation with the A.P.I. were recognized generally, hesitancy in effecting a union with the national association was evinced by the Mid-Continent men because of a marked difference in the character of the membership of the two bodies. While the Mid-Continent association is composed exclusively of oil scouts and land men, the national association is open to men engaged in any department of the petroleum business, including drillers, tooldressers, brokers, pipe line workers, roustabouts, etc. The California association includes scouts and land men only.

The Mid-Continent association's territory is confined to Oklahoma and Kansas. The National covers Texas, Arkansas, Louisiana and New Mexico.

Lutz Talks for National Association

R. T. Lutz, with the Humble Oil and Refining Co., Vernon, Tex., chairman of the executive committee of the National association, represented that body in the discussion of the proposed merger, which occupied most of the business session of the convention held on Saturday forenoon. Mr. Lutz recognized the validity of the question raised by the Mid-continent men and indicated that he would use his influence to have the bylaws of the National association changed so that its membership should be confined to oil scouts and land men. It was regarded as probable that if the National association should make this change there would be virtually no objection to consolidation.

In the election of officers at the business session Robert P. Brewer, Jr., Wichita, was chosen president by acclamation. He is a land man with the Barnsdall Oil Co. Ralph Walkingstick, Shawnee, Okla., scout with the Tidal Oil Co., was elected first vice president; Clark Piggott, Ponca City, Okla., scout with the Pure Oil Co., second vice presi-

(Continued on Page 146)

High Spots in Field News

SOUTHWEST TEXAS

Joe Bruner Pool may not go farther than another mile to northwest with southwest already limited by fault.

ARKANSAS

Two Champagnolle extension wells have stopped flowing and latest completion disappointment.

Ten operations under way in Mount Holly Pool.

NORTH TEXAS AND PANHANDLE

Throckmorton County wildcat has 1,000 feet of oil in hole.

Gray County, Panhandle, has best well, 1,454 bbls. first 24 hours.

COLORADO

Texas Production Co.'s No. 11 Knowlton, Moffat Dome, topped Sundance and started flowing 32 bbls. per hour for 17 hours when hole caved. Resumed flow when hole cleaned. No. 5 Wick swabbed 442 bbls. in 18 hours; another test to Sundance.

KANSAS

Shell Petroleum Corp.'s No. 1 Lygrisse, Sedgwick County, deepened a foot, producing at rate of 2,100 bbls.; several miles ahead of production and may be pool opener. Bu-Vi-Bar Petroleum Corp.'s No. 4 Shawver, Valley Center Pool, made 2,217 bbls.

GULF COAST

DeWalt Dome, Fort Bend County, production extended 2,700 feet southeast by Humble well flowing 1,200 bbls. Proved length now over 6,000 feet from northwest to southeast.

New well at Humble gauged 6,418 bbls. third day.

CALIFORNIA

Wilshire company completes well in O'Connell zone flowing 9,865 bbls. of clean 34.1 oil and 8,100,000 feet of wet gas.

State-wide proration to be effective May 4, reducing production by 143,118 bbls. By middle of last week under original plan had shut in 70,000 bbls. daily.

WEST TEXAS

Prospective first pool in Glasscock County; well has 2,000 feet of 30 gravity oil in hole.

Coke County well not so promising as first thought.

Llano Pool, northern Winkler, defined to northeast.

Hearing on extending Winkler proration six months to be held at Austin May 3.

OKLAHOMA

Mid-Continent Petroleum Corp.'s No. 4 Smith, east extension of Little River, flowed 5,675 bbls.

Independent Oil & Gas and Mid-Continent companies' No. 1 McGirt, Hughes County, made 310 bbls. natural.

Production of Greater Seminole over week-end was reduced 60,693 bbls.

Deepening aids Pottawatomie County wells.

Late News from the Field

KANSAS

Shell Petroleum Corp.'s No. 1 Lygrisse in the SW cor. NE, Section 15-26-2e, Sedgwick County, Kansas, after being deepened a foot was producing Tuesday at the rate of 2,160 bbls. a day of pipe line oil. The top of the sand pay was at 3,164 feet, and the old total depth was 3,166 feet where it had been making 900 bbls. a day for 10 days. This well is several miles ahead of production and it has enhanced the prospects of the county by its big flow and indications that it is a pool opener.

Bu-Vi-Bar Petroleum Corp. and others' No. 4 Shawver in the SW cor. NW, Section 7-26-1e, Sedgwick County, Kansas, in the Valley Center Pool, had the pay sand at 3,347-58 feet. The first 24 hours' production was 2,217 bbls. which makes it one of the largest wells completed in the pool.

OKLAHOMA

Tidal Oil Co. and others' No. 1 Davis in the C SE SE, Section 31-5-2, southeastern McClain County, had the top of the Viola lime at 3,989 feet, and the bottom at 4,124 feet. The well topped the Simpson at 4,124 feet. While drilling in at 4,130 feet the well had a rainbow show of oil and some water. The company later reported that both the oil and water had been exhausted and the well was fishing at 4,150 feet.

Mid-Continent Petroleum Corp.'s No. 4 Smith in the SE cor. NW NE, Section

(Continued on Page 151)

Wildcat Well in Throckmorton County

Has 1,000 Feet of Oil in Hole. Petrolia Pool Has 250-Bbl. Producer. Gray County Has Its Best Well

From Fort Worth Bureau, The Oil and Gas Journal.

FORT WORTH, Tex., Apr. 29.—A wildcat in Throckmorton County with 1,000 feet of oil in the hole was the most interesting development in North Texas during the past week. Gulf Production Co.'s No. 3 Brown in the center of the T.E.&L.Co. Survey No. 1,617, has 1,000 feet of oil in the hole and making 300,000 feet of gas from 4,171 feet. A test is being made.

Another interesting development in the Wichita Falls district was the completion of a 250-bbl. well in the Petrolia Pool in Clay County by the Mid-Continent Holding Corp. This is the oldest producing area in the district. The well topped the pay at 1,780 feet and is making an estimated flow of 500,000 feet of gas.

As a whole the district was comparatively quiet although daily average production showed an increase of 1,191 bbls. Most of the increase was in Archer and Wilbarger Counties with the former reaching a new peak in production. Cooke County's former peak was in the fall of 1927 when it made a peak of slightly under 6,400 bbls. This increase is coming from the prolific producers for that area being completed in the old Bulcher Pool. Wilbarger County remains the most active territory in the district with steady drilling going on in the Grayback Pool and contiguous territory.

Panhandle Feature

In the Panhandle, Southern Petroleum Exploration Co.'s No. 4 McConnell in Gray County was the feature well of that area. The well is located in the SW NW. Section 174, Block 3, in the western part of the county near the Carson County line.

This well made 1,454 bbls. the first 24 hours from lime pay at 3,205-12 feet. It is the best well yet drilled in this territory and the average well for the sector is around 100 to 200 bbls. Surface elevation of the well is 3,260 feet.

In the other areas of the Panhandle only routine developments were reported. Production of the Panhandle declined 3,795 bbls. during the week to 60,530 bbls. and took another hitch in a tight crude market in that territory. Most of the loss in production was traced to a sharp decline in a number of Gray County flush producers.

A cleaning out campaign on a number of leases in the Ranger district along with a small amount of new flush production gave the Ranger district a 704-bbl. increase in production. So far as field developments were concerned there was little of a significant nature reported.

RANGER COMPLETIONS

Week Ended April 27

Brown County

American-Maracaibo Oil Co.'s No. 4 Cross was dry and abandoned at 1,087 feet. Moore Oil Corp.'s No. 1 Cross had an initial production of 200 bbls. at 1,155½ feet. Prairie Oil & Gas Co.'s No. 1 Shults had an initial production of 20 bbls. on pump at the total depth of 1,101 feet. Williamson and others' No. 5 Eddington was dry and abandoned at 1,175 feet. Evans' No. 1 Martin heirs was temporarily abandoned. Core & Brown's No. 4 Mayes was temporarily abandoned.

Eastland County

Southern Oil & Production Co.'s No. 2 Thorp made 2,700,000 feet of gas at 1,728-30 feet.

Coleman County

Stepp & Kiester's No. 1 Shore was drilled to a total depth of 2,315 feet and was dry and abandoned. Texas Pacific Coal & Oil Co.'s No. 1 Gay was drilled to a total depth of 1,366½ feet and had an initial production of 10 bbls. oil and 12 bbls. water. Weatherred and others' No. 1 Ford was temporarily abandoned. Windsor and others' No. 1 McClatchey was temporarily abandoned. Roth & Faurot's No. 1 Sealy Smith was dry and abandoned at 3,205 feet.

Erath County

Associated Production Co.'s No. 1 Cary was shot with 15 quarts at 3,257-80 feet and had an initial production of 6,930,000 feet of gas.

Shackelford County

Callahan's No. 1 Nail was dry and abandoned at 1,524 feet. Roeser & Pendleton, Inc.'s No. 1 Cook-A was dry and abandoned at 1,570 feet.

Stephens County

Hanlon Gas Co.'s No. 2 Stephenson was drilled to a total depth of 4,368 feet, shot with 45 quarts at 4,335-68 feet and had an initial production of 15 bbls. on pump. Nunn & Rumbaugh's No. 1 Russell was drilled to a total depth of 2,117 feet and had an initial production of 17 bbls.

PANHANDLE COMPLETIONS

Gray County

Magnolia Petroleum Co.'s No. 1 Gething, located 530 feet each way from SE SW, Section 14, Block A-9, H.&G.N.R.R. Survey, was drilled to a total depth of 3,075 feet, plugged back to 2,358 feet and made 2,000,000 feet of gas at 2,314-58 feet. The Texas Company's No. 16 Saunders, located 330 feet north and west of southeast corner of west half of J. G. Eustis Survey, was drilled to a total depth of 2,656 feet and is flowing 387 bbls. from 2,649-56 feet. Wilcox-Pampa Oil Co.'s No. 31 Worley-Reynolds, located 330 feet north and east, SW cor., Section 61, Block 3, I.&G.N.R.R. Survey, was drilled to a total depth of 3,160 feet, shot with 40 quarts at 3,046-74 feet and is now flowing 100 bbls daily from 2,925-3,100 feet.

Childress County

The Texas Company's No. 1 Smith, located 100 feet each way from NW cor., Section 174, Block H, W.&N.W.R.R. Survey, was plugged and abandoned at 4,571 feet.

Hutchinson County

Antelope Creek Oil Co.'s No. 3 Sanford, located 330 feet from north line and 330 feet from west of east half of south 160 acres of Section 82, Block 46, H.&T.C.R.R. Survey, had an initial production of 10 bbls. oil and 100 bbls. water at 3,094 feet. Phillips Petroleum Corp.'s No. 3 Sanford was drilled to a total depth of 2,964 feet, shot with 30 quarts at 2,962-64 feet and had an initial production of 225 bbls.

Moore County

Devonian Oil Co.'s No. 1 Sneed, located in M. Robinson Survey, was dry and abandoned at 3,455 feet. Dixon Creek Oil Co.'s No. 4 J. T. Sneed, located 330 feet south and west of NE cor. E half, Section 65, Block 3, was shot with 55 quarts at 3,305-25 feet and made 9,000,000 feet of gas at 2,800-50 feet. Skelly Oil Co.'s No. 6 Armstrong & Byrd, was drilled to a total depth of 3,173 feet, had an initial production of 330 bbls. of oil and 175 bbls. of water. The pay was topped at 3,172-3,265 feet.

Wheeler County

Arnold Oil Co.'s No. 1 Richey, 420 feet from east and 460 feet from south line of NW cor., Section 5, Block 24, H.&G.N.R.R. Survey, made 8,500,000 feet of gas at 2,112-2,205 feet. Holmes and others' No. 1 Close, 660 feet north and west of SE cor., Section 82, Block 23, H.&G.N. Survey, made 64,000,000 feet of gas from 1,280-1,375 feet. Upham Gas Co.'s No. 1 Raybo was drilled to a total depth of 1,976 feet and made 24,000,000 feet of gas at 1,832-84 feet.

King County

The Texas Company's No. 1 Johnson was dry and abandoned at a total depth of 4,300 feet.

WICHITA DISTRICT COMPLETIONS

Archer County

Geynn and others' No. 1 Thompson was drilled to a total depth of 1,586 feet, topped the pay at 1,580-86 feet and had an initial production of 105 bbls. Hines' No. 2 Wallace made 27 bbls. oil and 5 bbls. water at 1,776-79½ feet. Johnson & Frazer's No. 1 Wallace was dry and abandoned at 1,790 feet. Johnson and others' No. 7 Wilson was drilled to a total depth of 1,568 feet and had an initial production of 63 bbls. The Texas Company and others' No. 1 American Refining Properties was dry and abandoned at 1,912 feet. Beasley's No. 3 Abercrombie & Taylor had an initial production of 23 bbls. at 1,390 feet. Christie and others' No. 1 Campbell was dry and abandoned at 1,351 feet. Estacado Oil Co.'s No. 1 Prideaux had an initial production of 12 bbls. at 672 feet. Freeman & Grebin's No. 1 Easterling had an initial production of 20 bbls. at 1,442 feet. Lea & Daniels' No. 7 Williams had an initial production of 18 bbls. oil and 3 bbls. water at 593 feet. Prairie Oil & Gas Co.'s No. 1 Richardson had an initial production of 43 bbls. at 1,167½ feet.

Cooke County

Green and others' No. 1 Moon & Touchton was dry and abandoned at 2,022½ feet. Lanfair and others' No. 1 Jones was dry and abandoned at 1,860 feet. Pure Oil Co.'s No. 6 Embry was drilled to a total depth of 1,365 feet and had an initial production of 118 bbls. The Texas Company's No. 1 Dennis was dry and abandoned at 1,703 feet. Their No. 8 Dennis had an initial production of 145 bbls. at 1,273 feet.

Jack County

Harper's No. 1 Leffel made 528 bbls. daily at 3,100 feet. Panhandle Refining Co.'s No. 2 Smith was drilled to a total depth of 3,050 feet and had an initial production of 80 bbls. flowing. Petroleum Production Co.'s and Bridwell Oil Co.'s No. 1 Sampley was drilled to a total depth of 3,368 feet, plugged back to 3,180 feet, was shot with 40 quarts at 3,180-3,368 feet and had an initial production of 86 bbls. flowing.

Montague County

Bridwell & Co. and Continental Oil Co.'s No. 1 Lauderback was drilled to a total depth of 1,959 feet and was dry and abandoned.

Wichita County

Comas & Prairie Oil & Gas Co.'s No. 7 Bishop was dry and abandoned at 901 feet. Magnolia Petroleum Co.'s No. 3 George had an initial production of 5 bbls. at 1,547 feet. Panhandle Refining

(Continued on Page 128)

ESTIMATED DAILY AVERAGE PRODUCTION NORTH TEXAS

Week ending April 27

Panhandle District—	
Carson County	6,680
Gray County	25,780
Hutchinson County	25,585
Moore County	1,780
Potter County	50
Wheeler County	655
Total this week	60,530
Total last week	64,325
Decrease	3,795
Wichita Falls District—	
Archer County	16,573
Baylor County	74
Clay County	474
Cooke County	6,401
Jack County	2,132
Montague County	6,996
Throckmorton County	625
Wilbarger County	27,735
Young County	6,648
Wichita County	27,212
Total this week	94,870
Total last week	93,679
Increase	1,191
Ranger District—	
Brown County	8,403
Callahan County	4,067
Coleman County	3,543
Comanche County	1,162
Palo Pinto County	398
Ranger	5,190
Shackelford County	13,188
Stephens County	6,961
Total this week	42,912
Total last week	42,208
Increase	704
Grand total this week	198,312
Grand total last week	200,212
Decrease	1,900

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ended April 27

CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Champlin Ref. Co.'s No. 3 McConnell, 330 ft. S and E of NW W½ NW, Sec. 67, Blk. 4, I.&G.N.R.R. Sur.	Location.
Empire G. & F. Co.'s No. 1 Armstrong, 330 ft. from S line and 330 ft. from E line of NW SE, Sec. 31, T.T.R.R. Sur.	Drlg. 2,100 ft.
Empire G. & F. Co.'s No. 15 Burnett, C NW, Sec. 4, Blk. 5, I.&G.N.R.R. Sur.	Set 10-in. csg. 1,063 ft.
Empire G. & F. Co.'s No. 16 Burnett, C NW cor. Sec. 104, Blk. 5, I.&G.N.R.R. Sur.	Location.
Gulf Prod. Co.'s No. 1 Block, 330 ft. S and W of NE cor. NW, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	Location.
Empire G. & P. Co.'s No. 5 M. P. Co.'s "A", 330 ft. S and E of NW cor. SE SW, Sec. 91, Blk. 4, I.&G.N. Sur.	Location.
Gulf Prod. Co.'s No. 1-E Cooper, 330 ft. S and W of NE cor. SW, Sec. 5, Blk. 9, I.&G.N. Sur.	T.D. 3,140 ft; C.O. and swbng.
Gulf Prod. Co.'s No. 6 Noel, 330 ft. S and 1,320 ft. E of NW cor. SW, Sec. 198, Blk. 3, I.&G.N. Sur.	Show oil 3,170-75 ft; run. 6-in. 3,175 ft.
Marland Prod. Co.'s No. 1 Burnett-L, 440 ft. S and 1,320 ft. NW NE cor. Sec. 79, Blk. 4, I.&G.N. Sur.	Drlg. 2,250 ft.
McElroy Oil Co.'s No. 1 Lewis, 330 ft. S and E of NW cor. SW NE, Sec. 115, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 2,183 ft.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44	C.O. 2,703 ft.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	Drlg. 3,120 ft.
Skelly Oil Co.'s No. 13 Schafer, 330 ft. N and E of SW cor. Sec. 88, Blk. 4, I.&G.N. Sur.	Spudding.
Skelly Oil Co.'s No. 14 Schafer, 330 ft. S and W of NE cor. Sec. 65, Blk. 4, I.&G.N.R.R. Sur.	Rigging up.
The Texas Corp.'s No. 1 Quinn, 330 ft. from S line and 330 ft. from W line SE, Sec. 7, Blk. 9, I.&G.N. R.R. Sur.	Drlg. 775 ft.
Travis et als' No. 1 D. A. Harrel, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	Set 6-in. csg. 3,375 ft.
Ware et als' No. 1 Ware, 990 ft. S and 460 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	U.R. 5-in. csg. 4,525 ft.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.

(Continued on Page 112)

Glasscock County May Have First Pool

Well Standing 2,000 Feet With 30 Gravity Oil. Coke County Well Disappointing. Llano Pool Defined to the Northeast

From Fort Worth Bureau, The Oil and Gas Journal.

FORT WORTH, Tex., Apr. 29.—After having been tested by several unsuccessful wildcats the McDowell ranch in north central Glasscock County has apparently come into its own. The World Oil Co.'s No. 1-C McDowell, now standing at 2,398 feet waiting on orders, with 2,000 feet of 30 gravity oil in the hole, promises to open up the first pool in this county, although this is not the first production in the county, the Roberts Pool in Howard County extending into Glasscock. This test has been closely watched from 2,100 feet on down, for it was generally believed it would pick up the lime much higher than other wildcat tests in this area. This theory proved correct for the dolomite, which corresponds to the Big lime, was found at 2,360 feet, or 220 feet higher than Gulf Production Co.'s No. 2 McDowell, in the SE. Section 30, same block and survey as the World Oil Co.'s well. First pay was encountered at 2,350-56 feet where the hole filled 300 feet with 26.0 gravity oil. At 2,385 feet there was another pay yielding 30 gravity oil.

The nearest production to this well is the Settles Pool on the Plymouth Oil Co.'s lease in Section 5, Block 32, T.&P. Survey, T-2-S, in Howard County, 6½ miles northeast. It is generally believed that the World company's No. 1-C McDowell opens up a distinctly new pool instead of making an extension to the Settles. There will probably be tests in that direction to prove whether this theory is correct. Peyton Birdsong, geologist of the World Oil Co., worked the geology on this area.

The Atlantic Oil Producing Co. owns 80 acres on the west and east of the World Oil Co.'s quarter section where the well is located, and the Moutray Oil Co., Shell Petroleum Corp., Tidal Oil Co., and Empire Gas & Fuel Co. each own an 80 in the south half of the section. The ownership plat shows how surrounding acreage is owned by different companies and individuals, being cut up into many small units.

While the ownerships around this well are divided into many small tracts, and conducive to competitive drilling, it is not likely the territory will prove a disturbing element to the general production picture of West Texas. Most students of this territory hold this opinion, and base it upon the fact that the well has very little gas. It is expected production here will be similar to the shallower pays in the southern Howard County pools to the northeast.

Coke County Not So Promising

Mid-Kansas Oil & Gas Co.'s No. 1 Lackey, in SW cor. Section 272, Block 1-A, H.&T.C. Survey, Coke County, is not so promising after having encountered a hole full of water at 3,783-85 feet, the water rising in the hole about 100 feet per hour. A test was made and it is likely the company will plug back to test the oil show at 3,755-56 feet. As the showing at this depth was good, swabbing 70 bbls. on a test during the past week, a small producer can probably be salvaged from this pay. This well looked as if it would open up a new pool of high gravity sweet oil, in West Texas, similar to the kind found in the Elm Creek Pool in Runnels County, and the Fisher and Jones County Pools, but it is now rapidly losing its interesting aspect.

Perren and others' No. 1 H. J. Eaton, 150 feet each way from the northeast and northwest line of Section 27, Block 3, H.&T.C. Survey, Pecos County, also looks as if deepening would not help it, for it has been drilled to 1,506 feet with no increase in gas. The well will probably be completed here as a gasser, and the gas piped to Fort Stockton.

Shipley Pool

The Atlantic and Delmar Oil Co.'s No. 1 Hayzlett, Section 17, Block 5, Ward County, in the Shipley Pool, held up good during the week when it produced as follows: April 22, 208 bbls.; April 23, 264 bbls.; April 24, 289 bbls.; April 25, 229 bbls.; April 26, 255 bbls.; April 27, 238 bbls.; and April 28, 212 bbls. Top pay of this well was 2,473 feet; shot with 80 quarts from 2,473 to 2,500 feet; total depth 2,504 feet. It had one-half bailer of sulphur water from 2,502-04 feet, which was exhausted. The discovery well, which is the south offset to this producer, is being deepened, but thus far has not been helped. The latest available depth is 2,493 feet with no increase in oil. According to field reports this well will be carried a little below 2,500 feet, and shot.

Jones County New Pay

Last week the report of a new pay in Jones County enhanced the prospects of this area decidedly. The Texas Company's No. 6 Laura Carter, 200 feet from the north and east of its lease in Section 13, Block 19, T.&P. Survey, encountered the Fisher County pay horizon from 2,740-43 feet after having an oil show from 2,734-37 feet. For two days of this week it swabbed 150 bbls. daily, giving this sector three known producing horizons. In the future, all wells of this area will probably be drilled to this depth at least, before being completed. Profitable production above will be the only thing to prevent deeper drilling and seeking this third pay horizon.

Llano Pool Defined

In the Llano Pool, northern Winkler County, Shell Petroleum Corp. and Llano Oil Co.'s No. 5 Scarborough, Section 3, Block C-22, has defined the Llano Pool to the northeast. This well was dry and abandoned at 3,103 feet. Gulf Production Co.'s No. 1 Scarborough, Section 1, Block C-22, made 105 bbls. initially from a total depth of 3,350 feet.

Hendricks Well Shot

Shooting has helped another well on the east side of the Hendricks Pool. Southern Crude Oil Purchasing Co.'s No. 3-T-90 was completed some time ago at 3,060 feet, and later deepened to 3,160 feet where water was encountered. The hole was plugged back to 3,115 feet with lead wool and shot. The production increased from 68 bbls. daily to 28 bbls. per hour, with no water showing.

Production dropped after the first few hours, and settled to around 300 bbls. daily. This well is an offset to the Amerada-Walton test in Section 47, Block 26. Shooting is prohibited under the proration plan except when permission is obtained from the Railroad Commission, and the offset lease owners. When a well is shot its potential production is not permitted in figuring the allowance for that particular well, and it is only allowed to produce just what that unit is allowed on an acreage basis. Shooting has helped, to a small extent, on the eastern side of the field where the lime is compact, but has failed to benefit the wells in other parts of the field.

Hearing on Proration

The Railroad Commission has called an open meeting to be held in Austin, May 3, to obtain testimony whether proration shall be extended for another six months. The present plan will expire May 3. An overwhelming majority of operators have signified their intentions of voting for an extension.

Lea and Eddy County, New Mexico, are both coming in for a little activity in the way of locations which will be drilled to at least 500 feet to validate leases which are held by various companies. The Marland and California companies, joint owners of considerable acreage in Lea County, have made six locations during the week. Five more locations were made by other companies, bringing the total locations to 11.

Production Increases

Daily average production figures for the week ending April 27 indicate a 3,700-bbl. increase over the previous week due to gains registered in Howard, Pecos, Reagan and Ward Counties. Winkler County produced 6,000 bbls. under its allowed production. Ward County increased 1,000 bbls. when Gulf Production Co.'s wildcat producer, northeast of Wickett, was put on steady production.

ESTIMATED DAILY AVERAGE PRODUCTION WEST TEXAS
Week Ended April 27

County—	Wells	Production
Crane County	281	35,359
Crockett County	46	2,135
Ector County	2	3
Fisher County	7	895
Glasscock County	18	628
Howard County	301	44,935
Jones County	83	5,186
Loving County	10	589
Mitchell County	145	2,647
Pecos County	303	88,103
Reagan County	241	19,141
Runnels County	3	74
Scurry County	5	21
Upton County	268	13,350
Ward County	4	1,425
Winkler County	585	144,097
Total this week	2,302	358,498
Total last week	2,292	354,817
Difference	10	3,681

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended April 27

ANDREWS COUNTY

Company, farm and location—	Remarks—
Deep Rock Oil Co.'s No. 1 Hostetler, 2,310 ft. N and W of SE cor. Sec. 20, Blk. A-46	Top salt 1,890 ft.; set 8⅛-in. casing 2,790 ft.; top lime 4,297 ft.; fishing tools 4,483 ft.; 2 bbls. salt water per hour 4,092-94 ft.
Mid-Continent Oil & Gas Co.'s No. 1 Fisher, 1,320 ft. N and 200 ft. E or SW cor. Sec. 5, Blk. A-36	Drlg. 1,200 ft.; 12½-in. casing set 1,135 ft.

BORDEN COUNTY

Gibson & Johnson's No. 1 Higginbotham, middle of S line of Sec. 8, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	Drlg. 2,440 ft.
C .E. Hyde et al's No. 1 D. H. Beal, C NE Sec. 14, Blk. 31, Twp. 3n, T.&P.R.R. Sur.	Drlg. 3,090 ft.; slight show oil and gas 3,035-60 ft.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location.

BREWSTER COUNTY

E. W. Bateman et al's No. 1 Nevill, 2,000 ft. from S line and 1,000 ft. from W line of Sec. 64, Blk. 13, G.H.& S.A.R.R. Sur.	Cleaning out 1,955 ft.
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F.	Shut down 1,505 ft.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,500 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk 9, G.H.&S.A. Sur.	Drlg. 1,190 ft.
Johnson & Weekley's No. 1 Jackson & Harmon, C Sec. 104, Blk. 10, G.H.&S.A. Sur.	Fishing 1,005 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
Williams and others' No. 1 Poncey, 459 ft. S and 1,062 ft. E Sec. 26, Blk. 214, T.&St.L.R.R. Co.	Shut down 515 ft.

COKE COUNTY

Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Show oil 1,580 ft.; shut down 1,655 ft.
Cates & Dennis' No. 2 Mimms, 2,340 ft. N and W SE cor. Sec. 8, Blk. W, T.&P. Sur.	Spudded and shut down.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 2,840 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Pay 3,755-56 ft.; 6⅝-in. casing set 3,451 ft.; drlg. 3,758 ft.; 2,000 ft. oil in hole; 5 3/16-in. perforated casing set 3,756-58 ft.
Ray E. McCamey et al's No. 1 McCutchen, 2,300 ft. S and 785 ft. W of NE cor. of T. J. Hines Sur. No. 4	Drlg. 585 ft.

CONCHO COUNTY

Duffy et al's No. 1 Gilliam, 1,520 ft. N and 1,120 ft. W of SE cor. Sec. 21, Blk. 10, H.&T.C.R.R.	Location.
Jones & Leiner's No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878	Fishing 1,100 ft.

CRANE COUNTY

Duffey et al's No. 5 Cowden, 200 ft. each way from S and E lines Sec. 17, Blk. X, C.C.S.D.&R.G.N.G.	Location.

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WEST TEXAS COMPLETIONS

Week Ended April 27

Howard County

Cranfill & Reynolds' No. 1 Abrams, located Section 3, Block 32, Township 2s, T.P.R.R. Survey, topped the pay at 2,228 feet, was drilled to a total depth of 2,296 feet, shot with 300 quarts at 2,204-90 feet and had an initial production of 350 bbls. in 12 hours.

Irion County

Signal Oil Co.'s No. 2 Suggs, located 5,240 feet from north and 990 feet from west of Section 23, Block 27, H.&T.C. R.R. Survey, was dry and abandoned at 3,005 feet. F. E. Webb's No. 1 Nutt, located 600 feet north and 300 feet west of center of survey, was dry and abandoned at 3,511 feet.

Mitchell County

Harry Adams' No. 1 Ellwood, located 990 feet from south and 2,310 feet from west of Section 20, Block 18, was dry and abandoned at 659 feet.

Pecos County

Gulf Production Co.'s No. 16-B Smith, located 990 feet from north and 990 feet from west of Section 22, Block 194, topped the pay at 1,440 feet, was drilled to a total depth of 1,713 feet, and had an initial production of 124 bbls. hourly. McCarty Oil Co.'s No. 1 Gray, located 1,520 feet from south and 150 feet from west of Section 591, was drilled to a total depth of 1,195 feet, topped the pay at 1,152 feet, was shot with 12 quarts at 1,152-62 feet and had an initial production of 10 bbls. World

(Continued on Page 150)

If some stockholders knew what some refinery operating officials know, there would be only one cracking process used — the one which operates on fuel oil and produces no fuel oil for sale

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Deepening Aids Pottawatomie Wells

Large Increase in Production Recorded When Drilled Foot or Two More. Simms' Producer Holding Up Exceptionally Well

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

The leap in production attained by deepening the Irwin & Martin and others' No. 1 Kelly and the staying qualities of the Simms Oil Co.'s No. 1 Lester, both in Pottawatomie County, have been drawing attention among wells in Oklahoma fields the last week. No. 1 Kelly, in the SE cor. NE NE, Section 2-7-4, was producing 750 bbls. of oil a day at 3,775 feet in the Hunton lime. Upon being deepened 2 feet the production jumped to 2,400 bbls. As a result of the showing made by this well several new ones are being started and development of major play is a possibility. No. 1 Lester, in the SE cor. NE NE, Section 19-6-4e, in the southern part of the county, near Asher, was yielding 2,000 bbls. a day when it was completed two weeks ago at 3,698 feet in the Viola lime. It was drilled a foot deeper, with the result that the production was increased to more than 3,000 bbls. The gauge for the 24 hours ending at 7 o'clock Monday morning of this week showed 3,175 bbls. The Sunday morning gauge showed 3,095 bbls. The history of Viola lime wells in this district had led those watching the Simms company well to predict that it would show a slump in production before this.

Slick in Asher District

T. B. Slick has purchased from the Wrightsman Petroleum Corp. all of its holdings in the Asher district, in the southern part of Pottawatomie County. The deal includes 350 acres of leases and 40 acres of royalty in Townships 6-4 and 6-3. It is reported that part of the consideration was cash and the balance in oil.

This is the first big deal that Mr. Slick has made for his new company, the Tom Slick Oil Co., since he sold his producing properties to the Prairie Oil & Gas Co. a short time ago.

There are 14 new operations starting in the Asher district and Mr. Slick is interested in nine of them. He is the sole owner of four new wells and has a half interest in five others. This will make the spot the most active in the greater Seminole area outside the older pools as the Simms well is the only producer in the prospective pool at this time and produced 3,095 bbls. on April 25. Top of Viola 3,640 feet; 8-inch set at 3,665 feet; first oil 3,675 feet; total depth, 3,699 feet.

Results on Community Block

Several months ago, the following companies pooled their acreage and started a community test: Carter Oil Co., Indian Territory Illuminating Oil Co., Houston Oil Co., McMan Oil & Gas Co., Continental Oil Co., Prairie Oil & Gas Co., Tom Slick, Inc., Sinclair Oil & Gas Co. The leases totaled 640 acres in Sections 10 and 11-9-6, Seminole County, half way between the Seminole and Searight Pools, although cut off from both pools by dry holes on either side. The owners have recently completed the second well on this acreage.

The first test completed was a Wilcox sand well, now averaging 1,200 bbls. a day. The second well is the No. 1 Stewart, NE SE, Section 10-9-6, and is producing from the Hunton lime at 3,991-4,069 feet. It produced 4,175 bbls. initially, and on Friday made 4,000 bbls. The first well was No. 1 Strothers, SE SW NW, Section 11-9-6, Seminole County. It had 84 feet of Hunton lime with a small show of oil and made a Wilcox sand producer with an initial production of 1,300 bbls. A third test being drilled in the NE SE SE, Section 10-9-6 by the same companies had 85 feet of Hunton lime with a 15-bbl. show. It is a question among the geologists at this time if the Hunton produces will the Wilcox sand also make a paying well.

New Production in Hughes

Mid-Continent Petroleum Corp., and Independent Oil & Gas Co.'s No. 1 McGirt, SE cor., Section 31-9-9, Hughes County, 5 miles south of the Papoose Pool and a semiwildcat, started spraying oil, early in the week from the supposed Cromwell sand at 3,542-51 feet. After the cement plug was drilled out and the well was being bailed the gas blew the mud out of the hole and cleaned itself. It was left open and the oil production steadily increased. The well is making 4,500,000 feet of gas and is estimated to be good for 150 bbls. of oil.

The American Maracaibo Oil Co. is completing a new Wilcox sand well, No. 1 Henry, NE cor. NW SE, Section 27-12-12, Okfuskee County. It is the first well to find the Wilcox sand productive in that part of the field and will give the area west of Henryetta a new pool in which considerable drilling will take place in the near future. Wilcox sand was found at 3,333-69 feet and the well which is estimated around 100 bbls. a day, produces a 43 gravity oil, red in color.

Coal County's Deep Test

The Indian Territory Illuminating Oil Co.'s deep test in Coal County reached a depth of 7,038 feet with nothing showing. Seven thousand and twenty-five feet of drill pipe dropped to the bottom, and although it was recovered it is said that about 1,500 feet of it was ruined. As this test has been drilling in blue shale for about 5,000 feet and has had no sign of the Cromwell sand it looks like a long way down to the Wilcox at that point.

In Lincoln County, the Indian Territory Illuminating Oil Co.'s No. 1 Crane, C NW SW SW, Section 31-15-5, found Wilcox sand at 4,809 feet but got a hole full of water at 4,814-20 feet.

In Pawnee County, Peter Adamson's No. 2, SE cor. SW SE, Section 24-21-7, found a 368-bbl. initial production in the Siliceous lime at 2,851-53 feet. The Johnson Oil Refining Co. is taking the oil which has a gravity of 35.5 degrees.

In Payne County, Slick and the Shell Petroleum Corp.'s test, NE cor. NW, Section 31-17-6, is a hole full of water at 4,191 feet. It is in Siliceous lime.

In Okfuskee County, the Champlin Refining Co.'s well, in the SE cor. NE SW, Section 29-12-10, which was making 300 bbls. a day, stopped producing when the Prairie Oil & Gas Co. drilled in a south offset which started at 960 bbls. per day. It was thought that there was 180 feet difference in the depths of these pay horizons and the action of the Champlin well was a great surprise.

Wirt Franklin's No. 1 Lowry, C NW SW NW, Section 12-11-3w, Oklahoma County, is a 60,000,000-foot gasser with an 1,800-pound pressure from sand at 3,096 to 4,015 feet. Cromwell and Wirt Franklin and others' No. 1 Trosper, C SE SE NW, Section 13-11-3w, made 15,000,000 feet of gas with a tester.

The Shell Petroleum Corp. will make a Wilcox sand test in Wagoner County, one of the shallow areas in the State. It will be located in Section 25-16-19. The same company is reported to have blocked up leases in Sections 19 and 20-12n-23e, in Sequoyah County.

Daily Pipe Line Runs

The daily average pipe line runs from the Seminole area for the past week are as follows:

Company—	Bbls.
Barnsdall	8,538
Champlin	536
Continental	681
Consolidated	193
Cosden	13,016
Empire	5,577
Gulf	27,947
Independent	322
Magnolia	21,412
Oklahoma	35,965
Prairie	52,875
Producers & Refiners	36
Pure	6,561
Shaffer	4,522
Shell	8,831
Sinclair	29,065
Texas	17,821
Tidal	15,361
White Oak	2,936
	255,194
Tank cars	9,242
Grand total	264,436

Bu-Vi-Bar Petroleum Corp., in its Woods County wildcat well, had the initial showing of gas at 5,003-19 feet. The well then filled up with salt water. The company is underreaming casing at 5,038 feet to carry the hole deeper. The well is the No. 1 Thompson, SE cor. SW, Section 10-25-15w. Associated with Bu-Vi-Bar in drilling this well are the Gypsy Oil Co. and the Prairie Oil & Gas Co.

Reiter-Foster Oil Corp.'s No. 1 Watkins, SW cor. SE, Section 5-19-1w, Payne County, is in the Misener sand at 4,772-91 feet with a good show of oil. The owners express the belief that the bottom formation is the top of the Viola lime and will test out and set pipe, then drill to the Wilcox sand and if it is dry will plug back to Misener.

Carter County

Leonard Woodruff made location for No. 1 Zellner, NW cor. SW NE, Section

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WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Bros.' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Drlg. 175 ft.
Washoma Oil Co.'s No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rig.

BECKHAM COUNTY

C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w	Shut down 3,460 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w	Shut down 725 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w	Shut down 2,402 ft.
Trees Oil Co.'s No. 1 Rodgers, SW cor. SW Sec. 30-8-25w	Drlg. 1,300 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Drlg. 1,397 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w	Shut down 1,500 ft.
Day Oil Co.'s No. 1 Ault, NW cor. NW Sec. 33-8-21w	Shut down 1,515 ft.
Continental Oil Co.'s No. 1 Proctor, SE NE NE, Sec. 5-8-8e	Drlg. 1,900 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
Washoma Oil Co. and others' No. 1 Phillips, C NW SW Sec. 13-19-10w	Drlg. 150 ft.

CADDO COUNTY

J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w	Shut down 3,394 ft.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut down 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w	Fishing 5,582 ft.

COAL COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Harris, SE NE Sec. 10-1-11e	Shut down 1,975 ft.
W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Rig.
Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11	Drlg. 7,015 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9	Fishing 3,350 ft.
J. S. Cosden's No. 1 Richardson, NW cor. NE NE Sec. 6-2-8	Drlg. 1,480 ft.
McGinley & Sigler's No. 1 Willsey, NW cor. SE SE Sec. 7-2-8	Location.
E. W. Whitney's No. 1 Brown, C SE NE Sec. 10-2-8	Rig.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w	Shut down 4,055 ft.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w	Rig and tools.

DEWEY COUNTY

Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-18-15w	Shut down 4,500 ft.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 4,755 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-5-8w	Rig.
Wolfe and others' No. 1 Unknown, NW SE Sec. 15-12-18e	Rig on ground.

GRANT COUNTY

Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Shut down 5,640 ft.
Larlo-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w	Drlg. 4,305 ft.

GARVIN COUNTY

Smythe and others' No. 1 Shaw, NE cor. NE Sec. 27-2-3w	Rig.
Gilcrease Oil Co.'s No. 1 Kelly, SE cor. NW NE Sec. 36-3-3w	Drlg. 3,080 ft.

GREER COUNTY

I. T. I. O. and others' No. 1 fee, C SW NE Sec. 17-6-24w	Drlg. 150 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-20w	Rig.

HARMON COUNTY

I. T. I. O. Co.'s No. 1 fee, C SW SE Sec. 17-5-24w	Rig.

HARPER COUNTY

Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w	Shut down 4,130 ft.

HUGHES COUNTY

McGee Co.'s No. 1 fee, SE cor. Sec. 25-8-11e	Rig on ground.

(Continued on Page 99)

TRANSIT PUMPS
For Hot Oil

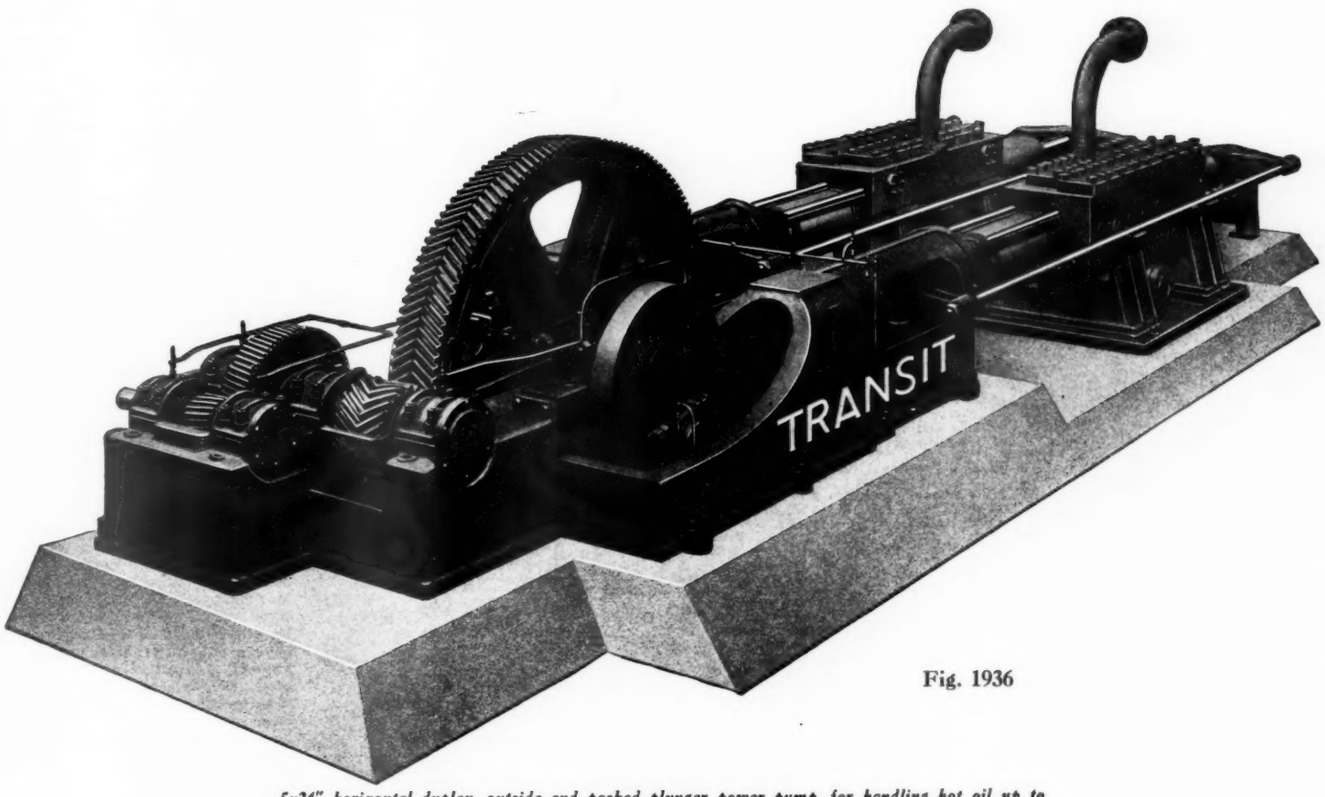

Fig. 1936

5x24" horizontal duplex, outside end packed plunger power pump, for handling hot oil up to 1000° F. and at 600 lbs. pressure. Capacity 213 gallons per minute. Gear guards have been removed to show double reduction gearing.

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Kansas Oil Activity Now Statewide

Sedgwick County Leading in New Wells and Production. Twenty-Three Completions in State Outside of Old Shallow Territory

By W. A. Spinney
Staff Correspondent, Kansas Fields

Oil activity in Kansas has grown from a county play to a statewide play in the past few months. Sedgwick County still leads in number of new wells and in volume of production. Two new producers were completed in the Valley Center Pool the last week. Another county breaking into the news with a good showing of oil is McPherson County. Greenwood County is being revived again by the new production found in the extreme northwestern part, which extends the producing area 2 miles. Chase County reports a new well that is showing oil.

Twenty-three completions were reported last week from the Kansas fields outside of the old shallow territory and 20 new operations were started. Nothing of sensational nature developed in the course of the week, but some interesting developments were recorded.

The Shell Petroleum Corp.'s test in SE cor. NE, Section 2-26-2e, Sedgwick County, which is in Viola lime from 3,164 to 3,166 feet, was tested from 4 p.m. Friday to 7 a.m. Saturday and swabbed 1,149 bbls. As the well was estimated by company officials at 1,000 bbls. per day, the test indicated it was a better producer than was expected. The Shell Petroleum Corp. will start one offset and the Gypsy Oil Co. two. The Gypsy Oil Co. will drill with rotary tools. The Shell Petroleum Corp. is laying a 4-inch pipe line from the well to the Barnsdall Refining Co.'s line south of the well and has built eight 500-bbl. tanks on the lease.

Gypsy's Wilcox Sand Well

The Gypsy Oil Co.'s Wilcox sand well, C NW SE SW, Section 16-35-3w, 330 feet north of the Oklahoma State line in Sumner County, made from 350 to 400 bbls. per day against a 400-pound back pressure for a part of last week. The Saturday morning gauge for the previous 24 hours showed a production of 297 bbls. against a 380-pound back pressure. The Gulf Pipe Line Co. will lay a 4-inch line to Caldwell, the nearest railroad town, and is waiting for the railroad company to build a spur for a loading rack.

A hot leasing campaign was begun following the discovery of the Wilcox pay and checkerboarding has been done practically to the line of Sedgwick County, which lies north of Sumner.

New Spots in Greenwood

The Phillips Petroleum Co. opened a new area in Greenwood County with its test in the C NE SE NW, Section 10-22-10. Bartlesville sand was found at 2,255-75 feet and after a 90-quart shot the well flowed 440 bbls. in 24 hours. Three offsets have been started. In the same county the Empire Gas & Fuel Co. and Rhodes opened a new producing spot with No. 1 Norton, NW cor. NE Section 22-22-12. The well had 16 feet of Bartlesville sand below 1,712 feet. The hole filled up in 10 hours and flowed about 1 bbl. per hour afterward. It will be swabbed and shot. The Empire Gas & Fuel Co. has made a location for No. 1 Edwards, NW cor. NE SW, Section 36-23-11, Greenwood County, to test another likely looking spot.

The two farthest north tests in the Hillsdale area in Marion County are somewhat disappointing. The Shaffer Oil & Refining Co. in the SW cor. NW NW, Section 7-19-3, got a pay at 2,803-22 feet which made a 50-bbl. initial production after a shot. The Empire Gas & Fuel Co.'s No. 2 Suderman, NE cor. SE NE, Section 12-19-2e, was shot with 20 quarts in sand at 2,823-61 feet and responded with only 25 bbls. the following 24 hours.

In Sedgwick County

The Valley Center Pool in Sedgwick County was defined on the east by results in the Betty Brown Oil Co.'s No. 1 Davis, NW cor. NE NW, Section 5-26-1e, which got a hole full of water from the Simpson at 3,472-3,502 feet. The water showed from 3,472 to 3,477 feet. The Bu-Vi-Bar Oil Co.'s Nos. 4 and 5 Goodrich show that the pool will not extend much east of their locations. No. 4 had Misener sand at 3,361-62½ feet and Simpson at 3,362-80 feet and was good for only 50 bbls. No. 5 was a hole full of water from the Simpson at 3,380-84 feet.

Two more failures were completed in the townsite operations in Valley Center. The Plains Oil Co.'s No. 1 School, in Section 36-25-1w, made 120 bbls. in 20 hours from pay at 3,412-14 feet but when deepened to 3,417 feet the hole filled with water.

The Wentz Oil Corp. is starting an interesting test west of the Valley Center Pool in SE cor. NE NW, Section 1-26-1w.

In the Marland Pool in Sedgwick County the Marland Oil Co.'s No. 1 Westerfield, NW cor. SE SW, Section 16-25-1e, got Viola lime at 3,326-38 feet and it showed oil. The swab produced 147 bbls. of oil in 24 hours but there was some water with it. The Marland Oil Co. increased the production of its No. 2 Goodrich, NW cor. NE SW, Section 16-26-1e, from 383 bbls. a day to 420 bbls. by the use of an electric bottom-hole pump. This well got the top of the chat at 3,004 feet, first oil at 3,023 feet and was drilled to a total depth of 3,036 feet.

Marland Production Co. is moving a rig for its No. 1 Black in the SW SE NW, Section 16-25-1e, in the Marland Pool northeast of Wichita. The test will be an offset to the Marland's No. 2 Goodrich to the north and will test the production in the chat on this side of the pool.

Washabaugh's Test Shows Oil

Ted Washabaugh's test, No. 1 Voshell, NE cor. Section 9-21-3w, McPherson County, developed a good showing of high-grade oil in the past week. Six-inch pipe was set at 2,981 feet, on top of the chat, and about 1,000,000 feet of gas was developed from 2,981 to 3,017 feet. The well was deepened to the Viola, topped at 3,301 feet, total depth 3,304 feet, and a good showing of oil was found. The oil rose in the hole and when it reached the gas horizon it was sprayed out at the rate of 3 bbls. per hour. It is a good-looking green oil of about 43 gravity. The crew was underreaming to set pipe on top of the Viola. The well at this writing is estimated as good for 100 or 125 bbls. of oil per day as it stands. It is an interesting fact that Ted Washabaugh is of the third generation of a well-known oil-producing family. He is a grandson of John H. Markham, Sr., an octogenarian oil producer well known in many oil fields where he drilled for and produced oil, and a nephew of John H. Markham, Jr., who is known personally or by repute in every field where oil is produced and rated among the country's leading oil men.

Location in Osborne County

The Mid-Kansas Oil & Gas Co. has made location for No. 1 Boyce, SE cor. NW, Section 18-6-13w, in Osborne County. The test is to be made on a core-drilled block.

The Phillips Petroleum Co.'s No. 1 Schmudler, NW cor., Section 20-12-17w, Ellis County, got Oswald sand at 3,429-39 feet. The well made 82 bbls. in 15 hours and was shut down for pipe line. It is estimated at 150 to 200 bbls. The Phillips Petroleum Co. is buying more acreage in Ellis County and is reported to have paid $90,000, $40,000 in cash and the rest in oil, for 720 acres owned by Howard & Hayworth.

The Producers & Refiners Corp. has a block in the southeast corner of Trego County. The block consists of all or a portion of 17 sections in Township 15s-21w.

It is reported that Sinclair Oil & Gas Co. has purchased an 80-acre tract one-half mile north of the Shell Petroleum Corp.'s No. 1 Lygrisse in SE cor. NE, Section 15-26-2e for $77,000 cash and $35,000 in oil. This well is considered by many oil men in Kansas to be in the true Wilcox sand.

The Aladdin Petroleum Co.'s No. 1 Benningfield in the SW Section 6-26-1e, Sedgwick County, on a town lot found the Simpson at 3,370-79 feet when the hole filled up with oil. The well was placed on the swab and is now making 900 bbls. daily. The well was started over three months ago, but owing to unforeseen troubles encountered while drilling the well has just been completed.

Another well for the Wright Pool is the Hartman-Skaer and others' No. 2 Lavender in the NW, Section 6-26-1e, Sedgwick County. The well found the

(Continued on Page 126)

WILDCAT OPERATIONS IN KANSAS

Company, farm and location—	Remarks:
BARBER COUNTY	
Allison & Fitzwilliams' No. 1 Morrisse, C NW SE SE Sec. 9-30-12w	Drlg. 1,900 ft.
Barbara Oil Co.'s No. 1 Lytle, CNL NE NE SW, Sec. 12-33-13w	T.D. 4,651 ft.; P.B. to 4,558-68 ft.; 25,000,000 ft. gas.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Drlg. 4,512 ft.
BARTON COUNTY	
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,470 ft.
Phillips and Shell's No. 1 McClellan, SE cor. SW Sec. 23-26-6e	Drlg. 2,500 ft.
BUTLER COUNTY	
Aladdin Petroleum Co.'s No. 1 Bronsenger, NE cor. NE SW Sec. 24-27-3	Rigging up.
Shell Petroleum Corp.'s No. 1 Thiesstin, C SE SW SE, Sec. 10-24-3	Drlg. 1,329 ft.
Smith & Ash's No. 1 Donnelly, NE cor. NE Sec. 8-24-6	Drlg. 2,035 ft.
CHASE COUNTY	
Greiner & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7	3,193-3,200 H.F.W. Abandoned.
Marland Prod. Co.'s No. 1 fee, SW NE Sec. 8-31-8e	Drlg. 1,050 ft.
CLAY COUNTY	
Gray et al's No. 1 Smith, NE SE Sec. 30-6-3e	Rig.
COWLEY COUNTY	
Cameron et al's No. 1 Zirkle, Sec. 35-31-3e	Shut down 3,237 ft.
Pyle & Sutter's No. 1 Lindstrom, SW cor. NE Sec. 9-35-4	3,648-51 ft; hole full water; abandoned.
J. B. Markley's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 520 ft.
Wakefield & Osborne's No. 1 Osborne, NW cor. NE Sec. 18-30-5	Drlg. 2,855-59 ft; est. 30 bbls. oil.
ELLIS COUNTY	
James Brouk's No. 1 Wagner, C SE SE Sec. 35-15-16w	Drlg. 3,438 ft.
T. C. Johnson's No. 1 Robbins, SW NW Sec. 15-14-16w	Shut down 1,040 ft.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Shut down 1,350 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Drlg. 1,345 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Atlantic Oil Prod. Co.-D. B. Mason's No. 1 Gorham estate, C SE SE Sec. 35-15-16w	Drlg. 3,438 ft.
Phillips Pet. Co.'s No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Drlg. 2,810 ft.
Phillips Pet. Co.'s No. 1 Dechant, NE SE Sec. 12-13-16w	Drlg. 2,540 ft.
Phillips Pet. Co.'s No. 1 Schneider, NW cor. Sec. 20-12-17w	Drlg. 3,429-39 ft.; 108 bbls. in 8 hrs.
Burger et al's No. 1 Hadley, SW cor. SW NW Sec. 20-11-17w	Shut down 50 ft.
John Brown No. 1 Company's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Shut down 1,350 ft.
EDWARDS COUNTY	
Amerada & Wilcox's No. 1 Teansil, C NW NW Sec. 32-25-19w	Shut down 5,000 ft.
British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w	Shut down 4,270 ft.
GEARY COUNTY	
Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5	Drlg. 1,800 ft.
GRAHAM COUNTY	
Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w	Shut down 3,450 ft.
GREENWOOD COUNTY	
P. H. Ballieu's No. 1 Bright, NE cor. SW Sec. 22-27-12e	Shut down 1,210 ft.
HARPER COUNTY	
Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 24-34-6w	Old total depth 5,360 ft.; plugged back to 4,000 ft.; drlg. 4,812 ft.
Independent & Reserve Oil Co.'s No. 1 Moulds, C NE Sec. 7-24-1w	Spudding.
HARVEY COUNTY	
McCulloch et al's No. 1 Prouty, NW cor. SW Sec. 3-23-1w	Location.
Roth & Parrent's No. 1 Brombrowsky, NW cor. Sec. 26-22-1e	Shut down 700 ft.
Empire G. & F. Co.'s No. 1 Tangeman, SW cor. NE NE Sec. 19-22-1e	Drlg. 3,425 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w	Shut down 2,100 ft.
Slick & Corinell's No. 1 Gatz, NW cor. SE Sec. 36-22-16	Drlg. 950 ft.
Hartman & Skaer's No. 1 Seaman, NW cor. NE SE Sec. 26-24-1e	Drlg. 2,610 ft.
Helmerich & Payne's No. 1 Lindamond, C SW NE SW Sec. 2-22-1e	Drlg. 3,265 ft.
Fisher & Louch et al's No. 1 Reiger, NW cor. NE Sec. 17-23-2	Shut down 2,980 ft.
Jolly & Ogg's No. 1 Randall, NE cor. NE Sec. 11-24-1w	Drlg. 3,070 ft.
Patton et al's No. 1 Dunning, SE cor. SW NE Sec. 26-24-1	Drlg. 1,850 ft.
Rosenthal et al's No. 1 Ingalls, C NW SW Sec. 24-23-3w	Shut down 1,405 ft.
Jolly & Ogg's No. 1 Hupp, SE cor. NE Sec. 22-23-1w	Underreaming 10-inch; 1,535 ft.

(Continued on Page 100)

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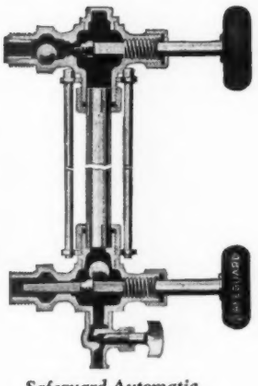

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Champagnolle Extension Quite Small

Two Wells There Have Stopped Flowing and Latest Completion Disappointment. Good Gas Wells Brought In

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Apr. 29.—With two of the wells gone dead and the last completion in the locality a producer making a very small fraction of the initial production of the three wells that preceded it, it begins to look as though the area at the extreme southern tip of proven territory in the eastern extension of Champagnolle in Union County, Arkansas, is a "pimple;" or else it is one of those small localized areas which, taken together, comprise the Champagnolle district. Whether such is the case will be demonstrated, so far as acreage immediately west is concerned, by the Ohio Oil Co.'s latest test, No. 1 E. Raulston in the NE cor. SW SE Section 12-17-14, a quarter mile west of the well that opened the new production. The company's No. 2 Adams is a derrick 330 feet north and east of SW cor. NE 7-17-13.

Meanwhile the company's No. 1 Oliver, in the NW cor. SW SW Section 7-17-13, and Arkansas Natural Gas Corp.'s No. 1 Morris in the SW cor. NW SW of the section have gone dead and will be put on the pump. But at the same time the Ohio Oil Co. completed No. 1 B. H. Raulston in the NE cor. SE SE Section 12-17-14, a west offset to the Oliver, flowing 175 bbls. oil, 12 per cent water, with 1,000,000 feet of gas from 4 feet of sand, total depth 3,017 feet. This is from 20 to 30 feet shallower than the three previous completions in this corner.

The Mount Holly district in Ouachita County fared little better during the week. Atlantic Oil Producing Co. and E. M. Jones temporarily abandoned No. 1 Wilson, a north offset to the discovery well, as a dry hole at 3,136 feet but left it in such shape that it can be deepened to 3,500 feet, which it probably will be. Magnolia Petroleum Co.'s No. 1 Wilson in the same section—25-15-18—a south offset to McDonald Brothers' No. 1 Wilson, the second producer in the new pool, cored sand from 2,852-59 feet, the same as that producing farther north, and is arranging for a drill stem test and Root Refineries swabbed about 25 bbls. from No. 1 Wilson, an east offset to the discovery, before it went completely dry. The bottom was 3 feet in the sand at 2,844 feet. Total depth of the discovery well is 2,868 feet.

Standard Buys Wildcat

Two weeks of dickering for a sale of the property was ended when D.C.R. Oil Co. and the Standard Oil Co. got together on a trade for the former's wildcat producer in Section 17-19-14, Caddo Parish, 12 miles north of Shreveport. The consideration is considerably involved in drilling clauses, payments out of production, working interests, etc., the cash consideration amounting to only $10,000. The Standard gets a 40 per cent interest in part of the 1,000 odd acres and 60 per cent on the rest and the well and in the end D.C.R. will get somewhere around $100,000 or more, depending on how the property produces. Meanwhile four outside wells have been started on surrounding acreage.

Magnolia Petroleum Co.'s No. 1 McCook & Hibbler, Section 22-21-10, Cotton Valley district of Webster Parish, drilling slate and shale at 5,022 feet is now, with one exception, the deepest well in Webster, Ohio Oil Co. having gone a few hundred feet deeper in one of its Cotton Valley wells last year. Ohio has started another deep test on its Bodcaw lease in Section 24-21-10, No. 43, in the center of the NW SW of the section.

Nemours Corp.'s No. 1 W. D. Munn in Section 1-22-10 Sarepta district, was a small gasser, 2,000,000 feet, at 2,623 feet, being one of the nine gas wells completed during the week. The smallest of these was W. D. Chew's No. 2-B fee in Section 33-21-15, Caddo Parish, which made only 50,000 feet with 200 bbls. of salt water along with it, from the unusually shallow depth of 907 feet. Dixie Oil Co.'s No. 95 Dillon, in Section 13-21-15 Pine Island district, started pumping 90 bbls. from the shallow pay at 1,753 feet. Magnolia Petroleum Co. abandoned location for No. 21 Dillon in Section 23-21-15 and Simplex Oil Co. completed No. 4 Baird in Section 22-21-15, pumping 40 bbls. from 2,200 feet.

Other Completions

The remainder of the completions were in the Monroe district, two in Morehouse Parish, four in Ouachita and one in Union, the latter being one of the largest recorded in the district during the past two or three weeks. Interstate Gas Co.'s No. 1 Flemming in Section 15-20-4, Morehouse Parish, gauged 22,000,000 feet, total depth 2,163 feet, and Southern Carbon Co.'s No. 9 Tensas had 5,000,000 feet from 2,180 feet.

Imperial Oil & Gas Products Co.'s No. 7 Tubbs in Section 44-19-3 Ouachita Parish, gauged 4,000,000 feet, total depth 2,195 feet. Pipes & Mack completed No. 2 McGee in Section 10-18-4, making 3,000,000 feet, total depth 2,213 feet. Southern Carbon Co.'s No. 12 Fairbanks in Section 34-20-4 made 9,000,000 feet from 2,158 feet and United Carbon Co.'s No. 2 Spade, Section 36-19-3, gauged 5,500,000 feet at 1,030 feet, total depth 2,197 feet. The Union Parish well was Feazel and others' No. 1 Peek, Section 16-20-4, which gauged 17,000,000 feet, total depth 2,144 feet.

Prior to the going dead of the two Champagnolle wells referred to there were 111 wells producing in the field on April 25, their total output being 10,639 bbls., an average of 96 bbls. Daily average runs from the field for the week, however, were only 8,630 bbls. Shipments from north Louisiana districts have been practically stationary for the past two weeks. Daily average runs from the several districts were:

Louisiana	
Caddo, light	8,220
Caddo, heavy	3,255
Homer	4,030
Haynesville	5,360
DeSoto-Red River	3,980
Elm Grove	560
Bellevue	680
Cotton Valley	3,080
Urania	5,880
Pleasant Hill	430
Sarepta-Cartersville	250
Total	35,775
Arkansas	
El Dorado	4,720
Smackover, light	6,215
Smackover, heavy	49,070
Stephens	1,020
Nevada County	1,200
Lisbon	1,350
Champagnolle	8,630
Bradley	100
Total	75,305
Both states	108,080
Last week	109,115
Decrease	1,035

NORTH LOUISIANA
Bossier Parish

Elm Grove—C. W. Jones, drilling for salt water, got a show of gas at 1,887-1,915 feet on No. 1 McDade, Section 31-16-11, formerly No. 1 Horton, and will go deeper.

Caddo Parish

Mooringsport—Falcon Oil Co. cemented 6-inch at 2,192 feet on No. 1-B Muslow, Section 29-20-15.

Oil City—W. D. Chew is drilling at 15 feet on No. 1-B fee, Section 33-21-16, and has derrick up for No. 1-C Levee Board in Section 34-21-16. Magnolia Petroleum Co. is reaming to bottom on No. 18 Doan-Thigpen, Section 6-20-15, total depth 2,817 feet. Shreveport Oil Corp.'s No. 1 Cheshire, Section 32-21-15, is shut down at 2,156 feet.

Pine Island—Dixie Oil Co. knocking out a bridge in No. 92 Dillon, Section 13-21-15, is drilling at 5,912 feet, total depth 6,099 feet; No. 97 set 42 feet of 10-inch and is drilling at 1,235 feet.

LaSalle Parish

Urania—G. W. Zoder set 100 feet of 10-inch on No. 2 King, Section 13-10-1e, and is drilling at 780 feet.

Monroe District

Morehouse district—Natural Gas Producing Co.'s No. 24 Crosset, Section 25-21-4, cemented 12-inch at 187 feet. Southern Carbon Co. is drilling No. 2 Griffing, Section 10-20-4, at 170 feet.

Ouachita Parish—Greenwood Production Co. cemented 6-inch at 2,133 feet on No. 2 Phillips fee, Section 18-19-4. Interstate Natural Gas Co.'s No. 2 Hunter & McCormick, Section 13-19-3e, cemented 8-inch at 779 feet and is drilling at 1,200 feet; No. 3 in Section 41-19-3 cemented 8-inch at 820 feet and is drilling at 1,100 feet; No. 4 in Section 1-19-3 cemented 8-inch at 791 feet and No. 5 is a derrick in Section 40-20-3. La-Del Oil Properties' No. 47 fee, Section 6-19-5, is drilling at 1,775 feet. Magnolia Petroleum Co.'s No. 1 fee, Section 14-18-4, set 8¼-inch at 2,170 feet; No. 2 United States, Section 30-19-5, set 10¾-inch at 836 feet and is drilling at 1,804 feet; No. 3 United States, Section 18-19-5, set 10¾-inch at 868 feet and is drilling at 1,040 feet. Maury Drilling Co. set 6-inch at 2,115 feet on No. 5 McEwen, Section 29-19-4. Nemours Corp. is drilling No. 2 Frierson, Section 18-19-4, at 2,150 feet. Pioneer Oil & Gas Co. No. 1 Fudicker, Section 18-18-5, cemented 8-inch at 270 feet and is drilling at 1,640 feet. Southern Carbon Co. has derrick up for No. 53 fee, 1,320 feet north and 660 feet west SE cor. Section 23-19-4.

Red River Parish

Gulf Refining Co.'s No. 38 Robinson, Section 25-13-11, is in gumbo at 1,617 feet

Richland Parish

Carbon Gas Co.'s No. 1 McCoy, Section 8-16-6, is drilling at 1,891 feet. Magnolia Petroleum Co. is drilling at 2,340 feet on No. 1 Sartor Co., Section 5-15-6, and M. L. Meridith has rig up to drill No. 1 Humble, Section 35-16-6. Richland Producing Co. is drilling at 1,750 feet on No. 1 J. H. Hemler, Section 2-16-6. Southern Carbon Co.'s No. 1 Tegola, Section 4-15-6, is drilling at 125 feet.

Sabine Parish

Pleasant Hill—Arkansas Natural Gas Corp.'s No. 13 Logan, Section 33-10-12, is drilling at 1,860 feet.

Webster Parish

Cotton Valley—Louisiana Oil Refining Corp. is drilling hard lime at 4,020 feet on No. 6 Gray, Section 28-21-10, and cemented 9-inch at 3,500 feet on No. 3 Nelson, Section 28-21-10. Magnolia Petroleum Co. cemented 8⅝-inch at 4,400 feet on No. 6 Marshall, Section 21-21-10, and cored shale and slate at 5,022 feet on No. 1 McCook & Hibbler

(Continued on Page 121)

TEN OPERATIONS NOW UNDER WAY IN NEW MT. HOLLY AREA OF ARKANSAS

By D. H. Bancroft

SHREVEPORT, La., Apr. 29.—Location for another well in that territory makes a total of 10 operations in wildcat and proven territory of the new Mount Holly district of Ouachita County, Arkansas, half way between the Stephens and Smackover fields. The latest addition is Arkansas Drilling Co.'s No. 1 Crowley in the NE cor. SE NE Section 17-15-18, 2 miles west of the discovery wells, on which derrick is up. The first wildcat to test in this locality was Timberlake and others' No. 1 Wright in Section 25-14-18, 6 miles north of the discovery well, which had salt water at 1,790 feet in 3 feet of sand and was coring gumbo at 1,836 feet.

Sundby and others made a test on No. 1 Yocum in Section 29-17-16, 3 miles west of production in the Lisbon Pool of Union County, on 4 feet of sand, total depth 2,728 feet, which was dry.

Bell and others, who abandoned No. 1 Terrell, Section 27-18-14, 6 miles east of El Dorado South Field, as a dry hole at 2,594 feet, have leased 800 acres centering on Section 8-18-12, Union County, and are financing a 3,100-foot test to be located in that section. The Terrell well checked 280 feet low and was the week's only wildcat completion in Arkansas.

Two new operations got under way, the Arkansas Drilling Co.'s test in Mount Holly and another in Bradley County by Phillips Petroleum Co. The latter, to be drilled by Phillips, on the Kline farm in the SW cor. NE SE Section 28-16-12, Bradley County, 7 miles east of Champagnolle production, is understood to be more or less a community proposition, the expense to be shared by the various interests, individual and corporate, which hold several thousands of acres in half a dozen blocks near by. They will probably drill to 3,500 feet "unless." Meanwhile Ohio Oil Co. cored red shale at 3,225 feet in No. 2 Southern Lumber Co., Section 19-16-12, Bradley County, which it is deepening after abandoning it as a dry hole last January.

Ohio Well Near Completion

Ohio is getting close to the end with No. 1 Jerome Lumber Co. in Section 13-15-4, Drew County, drilling at 3,520 feet. Only one test was made, dry at 2,506 feet.

When D.C.R. Oil Co. will drill in on its prospective wildcat producer in Section 17-19-14, Caddo Parish, depends upon when titles are approved. D. C. Richardson is said to have negotiated a deal with the Standard Oil Co. for a half interest in the well and 1,000 acres, but while various "terms" have been reported the real figures have not been revealed. The test, however, is expected during the coming week and meanwhile three more tests near by are getting under way. Lide and Davidson have rig up for No. 1 Glassell in Section 1-19-15, Root Refineries has rig up for No. 1 Liebman in Section 12-19-15 and Simplex Oil Co. has derrick on location for No. 1 Dickson in Section 33-20-14.

If negotiations are successful the extreme northeast corner of Louisiana will have another wildcat gas test. W. F. Hyde and others of Monroe have 30,000 acres in East and West Carroll Parishes

(Continued on Page 121)

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WHITTIER, CALIFORNIA

Joe Bruner Field May Be Defined

May Not Go Farther Than Another Mile to Northeast With Southwest Already Limited by Cross Fault There

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Apr. 29.—It begins to look as though the Joe Bruner Pool in Caldwell County would not be susceptible of extension more than another mile to the northeast and some think it has already about reached its limits in that direction. Toward the southwest the field has probably already gone as far as it will on account of a cross fault supposed to exist there. From the Shell Petroleum Corp.'s No. 4 New, the farthest north test, which late in the week was estimated at 75 to 100 bbls., to the extreme southwest end of the field is approximately 6 miles and of this about 3½ miles at the southwest end is pretty well drilled up. The remaining 2½ miles is proven with six producers at the extreme northeast end and one other about halfway between that and the rest of the field. Al Buchanan's No. 1 Trap Briscoe proved too far west. It is a little less than a half mile due north of the Shell Petroleum Corp.'s No. 4 New. It got the formations on the downthrow side and is being deepened to find a cavity in the Edwards that sulphur water from the field can be run into. The Shell Petroleum Corp.'s No. 4 New got the chalk at 2,440 feet which is a little low, though the same as No. 3 next south which made a good sized well. Humble Oil & Refining Co.'s No. 1 Trap Briscoe, 300 feet north of Shell's No. 4 New has the chalk at the same depth, 2,440 feet, but has not reached the Edwards. Beyond the Humble Oil & Refining Co.'s No. 1 Trap Briscoe no new locations have been made, and no dry holes have been drilled for a distance of approximately 5 miles. The idea that the field will not extend more than another mile or less than that is based on surface geology and the logs of the last wells drilled, all of which may be wrong.

Over 40,000 Bbls.

On a one-day gauge of 24 hours last week the field produced 40,777 bbls. from 170 wells and there is nearly as much acreage left to drill, but the northeastern end lacks the necessity for drilling offset wells that prevailed in the southwestern end due to the fact that the acreage in the northeastern end is held in larger sized blocks. The Humble Oil & Refining Co. owns rather a large sized tract between the six wells at the northeast end and the main producing field. Northeast of the six wells the acreage is in smaller tracts and if it extends in that direction a further drilling campaign may result. At present it does not look as though the field would reach 50,000 bbls. a day for some little time or in any event go beyond that unless the field gets another big extension to the northeast.

A 24-hour gauge of the production of the field on April 23 was as follows:

Owner, lease—	No. wells	Net bbls.
Abercrombie et al:		
Moses	5	650
Atlantic:		
Davis	2	95
Cranfill & Reynolds:		
Hanson	1	555
Merriweather	1	41
Northcut	2	585
S. Smith	3	903
Forrest Oil Co.:		
Fleming	1	150
Golden West Oil Co.:		
Malone	2	70
Wilson	5	400
Gulf Prod. Co.:		
Allen	4	577
Carter	10	2,483
Conley	7	2,262
Davis	4	366
J. Smith	1	62
W. L. Smith	8	1,082
M. Tiller	8	2,019
Wright	5	2,799
Humble Oil & Ref. Co.:		
Allen	3	704
Briscoe	2	988
J. J. Davis	4	335
W. F. Davis	1	67
Floy Gray	1	437
Hanson	3	780
Johnson "A"	2	558
Johnson "B"	1	457
Moses & Baggett "A"	6	2,365
Moses & Baggett "B"	5	3,048
Wm. Smith	4	651
J. B. Tiller	7	644
J. R. Tiller "A"	1	849
J. R. Tiller "C"	1	196
Wright	2	484
Lang et al:		
Walker Bros.	1	30
Lutex:		
Davis	2	45
Wilson	3	300
Shell Pet. Co.:		
Carter "B"	3	465
Malone	6	692
Moses	4	1,264
New	3	657
J. Smith	1	87
Wm. Smith	5	2,400
W. L. Smith	1	120
F. Tiller	7	5,334
Sun Oil Co.:		
Malone	5	702
Suttle et al.:		
Malone	1	68
The Texas Company:		
Merriweather	5	425
Townes & Porter:		
Hickman	5	419
Thurman & Brown:		
City of Luling	1	105
Total	170	40,777

Refugio Field

In the Refugio Field the interest was in two wells. The Oigufer Oil & Gas Co.'s No. 1 Ryals on the east edge of the field, a mile north of the Mission Drilling Co.'s No. 1 Nellie B. Cummings, got considerable gas at 3,660 feet and when deepened to 3,686 feet came in for an estimated 500 bbls. of pipe line oil. The Refugio Development Co.'s No. 1 City Streets, in the center of a 40-foot unused city street between Blocks 12 and 13 in the north end of the field and about a half mile east of the Saxet Gas Co.'s No. 1 Holmes Heard, the only oil well in the north end of the field, is down 3,400 feet and looking favorable but served with an injunction to keep it from being drilled farther or brought in. No. 1 Nellie B. Cummings which came in for a good oil well has started making considerable water and the Houston Gulf Gas Co.'s No. 7 Fannie Heard which offsets it on the west and on the side toward production came in for gas instead of oil in the same sand. However, they could be east edge wells and there could still be plenty of room for developing a big oil field at Refugio in the 3,700-foot sand.

Laredo District

In the Laredo district the Humble Oil & Refining Co. and Reiter-Foster Oil Corp.'s No. 18 Kohler in Duval County, in the area where they have been developing a gas field in sand at 1,830-35 feet, is a 25,000,000-foot gas well, at approximately the same depth and with approximately the same volume as other wells completed there but it widens the area a half mile northwest. The well is in the southeast corner of Survey 402, 150 feet from two lines. No. 21 Kohler in the same field in sand at 1,850-54 feet is of the same volume but is an inside location.

In the Henne, Winch & Fariss Pool in Jim Hogg County where A. L. Kitselman and associates were drilling a deep test, No. 1 Lopez, in Block 6, Survey 256, located 290 feet from the north line and 300 feet from the west line of the block, total depth reached was 3,402 feet, where it was dry. It was plugged back to 1,967 feet and completed as a 50,000,000-foot gas well. It had a sand at 3,192 feet that was dry and had a sand at 3,167-74 feet that was dry and another at 2,883-88 feet that tested salt water and considerable gas.

S. & O. Oil Co. completed No. 3 Bowe in the Schoolfield-O'Byrne Pool in northwestern Duval County in sand at 2,312-23 feet good for 25 bbls. of oil. It is on the west of the field and extends the field a half mile. It makes the field look more like a structure or dome than a fault.

O. W. Killam at the town of Bruni completed his No. 4 Bruni in Webb County at 2,303 feet for 35,000,000 feet of gas.

Humble Field—Duval

Humble Oil & Refining Co.'s No. 15 Kohler, Survey 401, located 825 feet east line, 165 feet north line, is drilling at 2,407 feet; No. 16 Kohler, Survey 144, located 225 feet south line, 165 feet west line, has derrick up; No. 17 Kohler, Survey 399, located 165 feet north and west lines, is testing at 2,756-60 feet; No. 18 Kohler, Survey 402, located 165 feet south and east lines, is standing at 1,835 feet where it tested small gas well.

No. 20 Kohler, Survey 251, located 165 feet north line, 2,475 feet east line, has spudded in; No. 21 Kohler, Survey 396, located 545 feet east line, 495 feet north line, is standing at 1,854 feet where it tested small gas well; No. 22 Kohler, Survey 395, is location 495 feet west line, 165 feet north line; No. 23 Kohler, Survey 404, is location 1,485 feet south and west lines; No. 24 Kohler, Survey 423, is location 165 feet north and west lines; No. 25 Kohler, Survey 172, is location 165 feet north and west lines.

Driscoll Field

Robert Driscoll's No. 15 fee, Survey 448, at 2,889 feet is flowing oil estimated good for around 1,000 bbls. daily.

Schoolfield—O'Byrne Pool

Magnolia Petroleum Co.'s No. 6-B Hahl, Survey 61, located 3,450 feet east line, 600 feet south line, is drilling at 1,880 feet in gumbo; No. 2 Hahl, Survey 250, Block 24, is location 150 feet north and east lines. G. M. Partee's No. 2 Moody, Survey 60, located 450 feet west line, 150 feet north line, has been spudded in. S. & O. Oil Co.'s No. 3-B J. Bowe, Survey 850, Block 21, NW cor., is at 2,323 feet, standing 500 feet in oil; No. 2 Hahl, Survey 250, Block 23, located 160 feet north and east lines, is moving on. The Texas Company's No. 3 Hahl, Survey 250, Block 18, located 150 feet south and west lines, is moving on.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 42 Merchants State Bank, Survey 235, is location 330 feet west line, 4,254 feet north line. Randado Oil Corp.'s No. 35 Palacious, Survey 291, Block 2, located 150 feet south line, 450 feet east line, is standing at 100 feet.

Henne-Winch & Fariss Field

A. L. Kitselman's No. 1 Lopez, Survey 255, Block 6, located 289 feet north line, 300 feet west line, is bailing at 1,943-67 feet, plugged back from 3,402 feet. The Texas Company's No. 2 Vela, Survey 589, is drilling at 1,700 feet.

Alworth Field

Alworth-Stevens-Hild's No. 16 Alworth, Survey 40, Block 14, located 150 feet northeast lines, 660 feet southeast lines, is coring at 1,018 feet.

Schott Field—Webb

Livingston & Payne's No. 1 Guerra-

(Continued on Page 122)

COAST TERRITORY SOUTHWEST TEXAS NOW MOST ACTIVE IN WILDCATTING

By B. D. Stevenson

SAN ANTONIO, Tex., Apr. 29.—Several interesting things happened in wildcat areas in Southwest Texas last week. Humble Oil & Refining Co.'s No. 15 Kohler, in Duval County, in the Laredo district at the southwest end of the oil area found by the company on the Kohler ranch, in sand at 2,763 feet, is showing some oil and is setting casing. This is about the depth of production in the four wells grouped together at the southwest corner of Survey 400.

Robert Driscoll reported previously as finding some oil in his No. 15 fee in Duval County in sand at 2,887-99 feet is setting casing but has not yet tested. It showed considerable oil on a test and looks more like an oil well than anything found in that territory thus far.

W. O. Wheatley, who individually or in association with others has been drilling around the Riser area in Webb at 2,805 feet in his No. 1 fee, is arranging to drill deeper. He has had several sands some of which showed a little oil and gas.

Usher Carson is down 936 feet and is changing rigs on his No. 2 D. Benavides in Webb County, northwest of Riser and north of the road leading from Laredo to Mirando City. It is an area that has looked good to many oil men but never tested much. The test is in Block 11, Survey 1,613.

More activity in wildcatting is centering in the Coast territory of Southwest Texas than anywhere else. When oil was "bit" in the Bruner Field a few months ago it took considerable of the time of the wildcatters but now that field is somewhat settled they are going back to the Coast. Humble Oil & Refining Co. will probably test its No. 4 Flato in the Kingsville Field early in the week. It is at 5,693 feet and showed some oil on a test and is the deepest hole drilled in that area.

George B. Pickett who has been standing at 3,000 feet in his No. 1 Whitworth in San Patricio County is setting casing and preparing to deepen.

F. P. Zoch is abandoning his No. 1 Kelly in Nueces County at 3,000 feet and will move 2½ miles north on the Baldwin tract and drill again. His No. 1 Nesloney in the same county is down 412 feet and set surface casing.

In Gonzales County, the Empire Gas & Fuel Co. drilled No. 2 Norwood, north of its No. 1 and got a dry hole at the producing depth around 3,790 feet and will drill to the Edwards. This makes it look serious in that field. No. 1 Norwood is still producing oil but has one dry hole 600 feet south and one 300 feet north and others at greater distances. It may be another pool of but one well.

In Bexar County, the Indian Creek Oil & Gas Co., which had a showing of oil at 1,597 feet in No. 1 Wolfsohl, pulled the 5-⅜-inch in two in getting it out of the hole but the hole is now clean and is reaming down to set 6⅝-inch and it will be a week or two before it is ready to make a test.

Brooks County

W. G. French's No. 1 Riley Allen, San Antonito grant, 8,416 feet west line, 14,722 feet north line, is drilling at 1,200 feet and is first of several core tests.

Starr County

Ohio Oil Co.'s No. 1 Bass, Porcion 76, Block 71, is drilling. U. S. Oil & Gas

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Texas Gets Another Gusher at Humble

Company's No. 39 Stevenson, Best Well Completed in the New Deep Producing Sand. Gauges 6,673 Bbls. in First 24 Hours

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Apr. 29.—Another gusher from the new deep sands on the south side of Humble was the most outstanding feature in Gulf Coast field operations the past week. Bringing in of another good deep well on the southeast side of Barbers Hill and extensions of production at DeWalt and Blue Ridge also were important developments and at the close of the week indications pointed to the opening of first production at two more salt domes. New wells boosted the daily average production of the Coast 5,021 bbls. to a new peak for the last two years.

At Humble, The Texas Company's No. 39 Stevenson blew in Wednesday and in the first 24 hours gauged 6,673 bbls. of pipe line oil. The well, the largest so far completed in the new producing horizon, was gauging 6,418 bbls. Friday. The oil is from a sand at a total depth of 5,248 feet and is flowing through two half-inch chokes and tests 43.2 gravity.

This well is a north offset to the South Texas Petroleum Co.'s No. 1 Morris, the discovery well, being between that well and the main field and thus farther into the dome. The Morris well is in a sand at a total depth of 4,347 feet and it and the No. 3 Morris, brought in several weeks ago, are making between 1,500 and 2,000 bbls. daily. No. 1 Morris flowed 5,200 bbls. initially. These three wells comprise the three producers completed from this new deep sand, but do not include the South Texas Petroleum Co.'s No. 2 Morris in the same area, which was completed in a deep sand, but shallower than the 5,200-5,360-foot level.

Semiwildcat Stirs Interest

Approximately 2,000 feet to the southwest, another deep semiwildcat test is stirring considerable interest. This is Humble Oil & Refining Co.'s No. 1 Williams, in which gas is showing heavily with the bottom of the hole at a total depth of 3,938 feet. The hole now is being reamed to 12¼-inch and casing will be run.

The prolific character of the deep sand development which has brought Humble out of a long period of virtual abandonment by the driller, is causing operators to watch closely other deep tests started on the south side. The South Texas Petroleum Co. is drilling on its fourth Morris test, which late in the week was in tough gumbo at 2,274 feet. The Texas Company also has two others, Nos. 262 and 263 Landslide. These are from 500 to 800 feet west of the three deep producers and offer possibilities for extension of production. The Texas Company's other wells on the Landslide acreage are to the north and in the older and shallower sand area.

Another completion, Sun Oil Co.'s No. 46 River Bed (Blaffer), was reported at Humble, but this well made only 100 bbls. and is in the older producing area on the north. Its production is from a sand at 3,965 feet. Sun is rigging up for No. 47 River Bed.

At the close of the week Barbers Hill seemed due for another deep sand producer on the southeast side of the dome, but as the well had not entirely cleaned itself the owners were uncertain as to what it was good for. The well, Mills Bennett Production Co.'s No. 2 Smith, it is estimated, will make 1,500 bbls. Total depth is 5,196 feet. The No. 2 Smith is an offset to Humphreys Corp.'s No. 1 Cornelia Barber, which flowed initially at the rate of 92 bbls. hourly, and is on the same small Smith tract on which the deep sand discovery well was brought in last October for 4,000 bbls. daily.

Barbers Hill Continues Active

Barbers Hill, including the deep sand development on both the southeast flank and the southwest flank, a mile to the west, continues one of the most active fields in the Gulf Coast, with 14 rigs, of which one is a workover, running, not counting one rig, Mills Bennett's No. 1 Barber, on the north side of the dome, which at present is fishing at 4,317 feet.

The complete operations at Barbers Hill are Unice Oil Co.'s No. 1 Feldman, drilling lime at 4,925 feet; Bennett's No. 1 Hamman-Armstrong, drilling gumbo at 2,212 feet; the same operator's No. 1 Smith (discovery well being worked over) milling out to sidetrack at 4,500 feet; Humphreys Corp.'s No. 7-A Kirby, drilling rock at 2,972 feet; the same company's No. 1 Tarbutton, drilling shale at 3,772 feet; its No. 1-H Kirby, drilling sand and boulders at 450 feet; Rexal Oil Co.'s No. 1 McLean, drilling hard lime at 3,230 feet; the same company's No. 2 McLean, rigged; Talbert & Markle's No. 1 Ellfrey, drilling shale and lime at 4,884 feet; the same operators' No. 1 Schilling, drilling sand and lime at 1,719 feet, and on the southwest, Gulf Production Co.'s No. 1 Fisher fee, drilling hard shale at 5,487 feet; Sun Oil Co.'s No. 1 Chambers, drilling shale at 5,465 feet; the same company's No. 2 Chambers, drilling gumbo at 1,815 feet; Yount Lee Oil Co.'s No. 4 Chambers, drilling sand and lime at 3,696 feet, and No. 5 Chambers, drilling sand and lime at 2,111 feet.

Production Area Increased

At DeWalt, Humble Oil & Refining Co. shoved its steadily increasing production 300 feet further south by its No. 5 Brazos, which came in flowing 1,200 bbls. with the bottom of the hole at 3,598 feet. A string of 1,000-bbl. wells has been completed at this field in the past several weeks and two other tests, No. 3 Camp and No. 2 Nelson, are at the pay level and should be in within the next several days. No. 3 Camp is at 3,348 feet in sandy shale and No. 2 Nelson at 3,662 feet in sandy shale. This company's No. 7 Sugarland is drilling shale at 2,952 feet, No. 6 Brazos is fishing at 1,563 feet, and No. 1-B Deatherage, No. 2 and 4 Hammer fee are rigged, while Nos. 1 and 3 Hammer fee are locations and No. 4 Camp a derrick.

Gulf Production Co. completed its No. 7 Invincible at Blue Ridge late in the week, flowing 1,100 bbls. of pipe line oil daily from sand at 4,250 feet. This well is on the extreme south side of the dome and is the most southerly hole ever drilled anywhere at Blue Ridge. It is 200 feet south of No. 6, also recently completed as a good producer.

Of particular interest in the development of wildcat production was the showing up of oil in Pure Oil Co.'s No. 1 Mayes, Lost Lake Dome, northern Chambers County. This well, completed several weeks ago blowing 40,000,000 feet of dry gas, late the last week was making 90 bbls. daily of oil with the decline of the pressure in the well from a peak of over 620 pounds to 60 pounds. The oil is being used as fuel for the boilers of two drilling rigs at Lost Lake.

Existence of Salt Proved

The Texas Company's No. 1 Lake Barre, Terrebonne Parish, previously reported as drilling in cap rock at 747 feet, has definitely proved the existence of salt at that new geophysical prospect recently taken over from the Louisiana Land & Exploration Co. The test late in the week was drilling in salt at 820 feet.

Daily average production of the coast climbed to 158,566 bbls. the past week due to the addition of important new production in several fields. The bulk of the gain was in fields on the Texas side of the line. In southwest Texas, the fields were fairly steady in output, including the Bruner aera. Daily average production in the two divisions was:

Texas

Allen	7
Barbers Hill	9,200
Batson	1,483
Big Creek	2,936
Blue Ridge	4,799
Brenham	150
Boling	2,004
Clay Creek	3,234
Damon Mound	675
DeWalt	10,578
Fannette	660
Goose Creek	6,381
High Island	1,628
Hull	9,095
Humble	8,072
Jasper	20
Markham	432
Nash	620
North Dayton	450
Orange	2,723
Orchard	319
Pierce Junction	21,136
Raccoon Bend	2,802
Saratoga	938
Sour Lake	2,743
South Liberty-South Dayton	5,435
Spindletop	32,967
West Columbia	6,239
Total	137,727
Total previous week	132,783
Increase	4,944

South Louisiana

Anse LaButte	45
Bayou Bouillon	227
Edgerly	890
Jennings	836
Hackberry	6,655
Lockport	3,135
Sorrento	395
Starks	508
Sulphur	3,360
Sweet Lake	370
Vinton	4,383
Welsh	35
Total	20,839
Total previous week	20,752
Increase	87
Total Gulf Coast	158,566
Total previous week	153,535
Increase	5,031

Southwest Texas

Dale	520
Branyon	25
Bruner	41,411
Gonzales	91
Kingsville	292
Larremore	166
Luling*	12,133
Lytton Springs	1,066
McMullen	60
Medina	30
Miranda district	12,252
Refugio	2,217
Somerset	1,699
Yoast	1,877
Total	73,838
Total previous week	73,666
Increase	172

*Includes: Caldwell County, 8,162 bbls.; Guadalupe County, 3,971 bbls.

Only One Well Completed

Although good oil showings have been found in several other tests at Lost Lake, one of the newly discovered domes, the No. 1 Mayes is the only well, either gas or oil, completed there. The sand in this well appeared very rich and operators, before the completion, were of

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WITH MUSKEGON AREA OUTLINED MICHIGAN TURNS TO WILDCATS

By Special Correspondent

MUSKEGON, Mich., Apr. 27.—Now that the limits of the Muskegon and Laketon Township areas are practically outlined for both the Traverse and Dundee production, oil operators are more interested in the wildcats in other townships of Muskegon County and adjoining counties.

There was widespread disappointment when the Pennsylvania Oil & Gas Co.'s No. 1 Bert Snow, NW SE Section 23-15-15, Leavitt Township, Oceana County, and the White River Oil Corp.'s No. 1 MacDonald, NE NW Section 29-12-17, Montague Township, both went into salt water soon after good shows in the Dundee and upper Traverse, respectively.

At 2,666 feet the Pennsylvania Snow well topped the Dundee. At 2,685 feet it had 400 feet of oil in the hole and a show of gas. At 2,686 feet it was into the bottom salt water and is now running casing at 2,900 feet to shut off the water.

At 1,652 feet the White River-MacDonald well topped the Traverse formation. At 1,672 feet it had a show of oil and gas and again at 1,720 to 1,725 feet. At 1,750 feet it had salt water and is now reaming to case off the water and drill to the Dundee.

Two other Muskegon County wildcats were drilling into the Dundee, the Moon-Fink Development Co.'s No. 1 V. D. Nash, SW NW Section 20-9-14, Ravenna Township, at below 2,200 feet, and the Eureka Oil Co.'s No. 1 Featherstone, SW SW Section 35-11-16, Dalton Township, at below 2,141 feet where 6⅝-inch casing was set.

The Lima Oil Corp.'s No. 1 Orville E. Atwood, SE SW Section 6-11-13, Ashland Township, Newaygo County, was plugged at 2,676 feet as dry in the Traverse and Dundee formations. It had a show of oill in the upper Traverse, which filled up 150 feet at 2,087 feet.

There were 10 new completions in the Muskegon and Laketon Township areas. One was a dry gasser in Muskegon Township, seven were oil wells, five in Muskegon and two in Laketon Township, one was dry in Laketon Township and the last was abandoned because of an impossible fishing job in Muskegon Township.

The Reed Oil Co.'s No. 4 Albert Heinz, NE SW Section 8-10-16, Muskegon Township, the lone new gasser, had an estimated flow of 5,000,000 feet a day at 1,988-95 feet. L. E. Kennedy's No. 2 Giles, NW SE Section 6-10-16, flowed 300 bbls. in the first 24 hours at about 2,050 feet.

Two wells on the upper Bear Lake flats each made 150 bbls. a day initial, Muskegon Oil Corp.'s No. 1 Yonker, NE NE Section 7-10-16, and Kent-Muskegon Oil Co.'s No. 1 Mrs. Charles Engeman, NE SW Section 5-10-16. Charles W. Mash and others' No. 2 Ira R. Hallock, NW NW Section 7-10-16, was estimated good for about 100 bbls. in the upper Traverse. Reed Oil Co.'s No. 2 Hill, NE SE Section 8-10-16, swabbed about 25 bbls. from the upper Traverse. Muskegon Oil Corp.'s No. 1 Torrent was abandoned. The rig will be skidded.

No. 1 Jacob Koning, drilled by the Majestic Development Co. for the Puritan Oil Co. on a tract located NE SE Sec-

(Continued on Page 126)

Many New Locations in New Mexico

Partly Result of New Government Policy on Public Land Leases. Only Water Reported in Vineland, Colo., District

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Apr. 27.—Announcement of new drilling locations in Lea and Eddy Counties, New Mexico, supplied the principal news from that area this week. A considerable number of these are on permits which the operators feel compelled to drill or run the risk of losing their equities under the Government's new oil conservation policy in the public land states. The locations so far made, or to be made within a week or two will total 25 to 30. The Midwest Refining Co.'s No. 19 Farnsworth in the Jal district has been temporarily abandoned. George F. Getty, Inc.'s No. 4 Dooley, in the Twin Mounds district in Eddy County, will be completed at the present depth after flowing 1,466 bbls. in 24 hours. The Continental Oil Co.'s No. 17, on the Rattlesnake Dome in northwestern New Mexico, continues to hold the spotlight with nothing to change the opinion it will be a big producer when the water is shut off.

The Continental Oil Co.'s Boundary Butte test, in southeastern Utah, is showing more gas as it drills deeper, but progress is slow on account of the pressure and depth. The Utah Southern Oil Co.'s Salt Valley test in Grand County is showing pressure from below which is forcing material up the hole several hundred feet.

One producer, a 20-bbl. well, was completed by the Continental Oil Co. in the Fremont County Pool in Colorado and two others were dry and abandoned. The White Eagle Oil & Refining Co.'s Piceance Creek test has skidded rig and started a new hole, and Las Animas County has a failure in the Okla.-Colo. Oil & Gas Co.'s No. 1 Doherty. Nothing but water is reported in the wells in the Vineland district southeast of Pueblo.

A number of Wyoming wildcats shut down for the winter are resuming. The Wyoming Oil Field Co. completed a 97-bbl. well in the Sundance in Salt Creek, and the Prairie Oil & Gas Co.'s test of the Deadwood formation on the Little Sheep Mountain structure in Big Horn County, struck the granite and is being abandoned.

NEW MEXICO

Drilling operations in southeastern New Mexico are showing a considerable increase with new locations being announced every few days. While not all of this activity is resulting from the Department of the Interior's new policy regarding permits, most of it originates from that decision and the intentions of the operators to drill permits in good standing rather than take any chances on obtaining extensions or modifications of the edicts.

In Lea County, the Texas Production Co. is moving in material for its No. 1 Humphreys in the NE cor. SW, Section 18-20-32. This was a location in the southwest corner of the section last fall and was temporarily suspended. The Shell Petroleum Corp.'s No. 1 O. B. Terry permit, SE SW NE, Section 22-19-38, is a location. The Midwest Refining Co. has made a location for its No. 16 G. Fisher permit, SE NW NE, Section 5-20-35, and it is expected this company will announce two new locations next week. Cranfill & Reynold's No. 1 Meyers, NE cor. SE, Section 22-24-36, is moving in. The Rector Oil Co.'s No. 1 King, SE NE NE, Section 26-25-32, has rig up, and the Maljamar Oil & Gas Co. is building roads for its No. 1 Simon, NE NE, Section 29-17-32. The Ohio Oil Co.'s No. 1 State, NE SE SW, Section 9-19-38, is drilling a water well, and its No. 1 W. H. Price, NE cor. NW, Section 7-19-39, has rig up. Cecil Bordages' No. 2 State, NE, Section 20-19-38, is a reported location.

In Eddy County most of the new locations are northeast of the Artesia Pool in the area around the No. 1 Jackson recently completed as a producer by Flynn, Welch & Yates. These include the Prairie Oil & Gas Co.'s No. 2 J. L. Keel permit, SW cor., Section 7-17-31; Pueblo Oil Co.'s No. 4 C. A. Russell permit, NW cor., Section 18-17-31; the Ohio Oil Co.'s No. 1 Sellery permit, SE cor. NE, Section 22-16-30; R. D. Compton's No. 1 Vandergriff, NW cor. NE, Section 33-19-30; Midwest Refining Co.'s No. 1 Lane, SW NW, Section 28-19-30; Grayburg Oil Co.'s No. 2 Root, SW, Section 7-17-30; and Flynn, Welch & Yates' No. 2 Gessert, SE cor. SW, Section 12-17-30. Joe Cook and others are reported making a contract for their No. 1 State, NW NE, Section 12-21-31, and George F. Getty, Inc., has made locations for No. 1 Cook and Ironsides, C SW NW, Section 8-20-29, and No. 1 Simmons, SW NW, Section 8-20-29, both in the Twin Mounds district.

Lea County Operations

In Lea County, the Texas Production Co.'s No. 1 Moberly, SW NW SE, Section 17-26-37, which was temporarily abandoned last February at 3,540 feet, where it had a bad fishing job, is preparing to resume and is rigging up cable tools. The same company's No. 1 Shepherd, SE cor. NE, Section 6-26-37, which has been tied up with a bad fishing job at 3,223 feet, total depth, for the past two months, is rigging up rotary tools. The hole has been making around 120 to 140 bbls. a day while fishing was under way. The same company's No. 1 Beulah Lynch, NW cor. SE, Section 34-20-34, which recently swabbed 639 bbls. in 12 hours from a total depth of 3,731 feet, is preparing to erect considerable storage for a 30-day test. The Gypsy Oil Co.'s No. 1 Mattern, SW cor. SE, Section 24-21-36, is drilling again and is below 3,125 feet. It had a show of gas at 3,030 feet. Cranfill & Reynolds' No. 1 Wilson, NW NE, Section 23-25-36, which has been shut down for storage, was opened up and swabbed the past week and made 75 bbls. in 24 hours from the lime at a total depth of 3,342 feet. It is believed this well will do much better drilled a little deeper. The Pueblo Oil Co.'s No. 1 Crosby, SW SW, Section 29-25-37, is preparing to run the 8¼-inch casing at a total depth of 2,614 feet after cleaning out. The tools were lost when the well struck a flow of 2,060,000 feet of gas at this depth. The Midwest Refining Co.'s No. 19 Farnsworth, SW SW, Section 12-26-37, stopped drilling at 4,115 feet in hard lime and will be temporarily abandoned. Sulphur water was flowing over the top. The same firm's No. 22 Gregory, SE SW, Section 31-25-37, is drilling at 400 feet in red rock, and its No. 31 Capps, SW cor., Section 3-19-38, in the Hobbs district, is drilling at 1,040 feet in red shale. A. D. Morton's No. 1, C NW, Section 29-11-38, in the Tatum district, is bottomed at 1,700 feet in red rock and fishing for tools. Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor., Section 18-20-34, is drilling at 3,150 feet in salt. It was thought this well was out of the salt at 2,960 feet when it went into anhydrite. The Texas Pacific Coal & Oil Co.'s No. 1 State, SE SW, Section 22-23-36, is drilling and coring in lime at 3,590 feet. The Empire Gas & Fuel Co.'s No. 1 Closson, NW SE, Section 6-22-36, is drilling a water well, and its No. 2-B State, SW SE, Section 8-21-35, commenced spudding April 16 and is drilling at 40 feet in sand. The Vacuum Oil Co.'s No. 1 State, Section 13-17-34, is drilling at 3,510 feet in anhydrite. Bull & Hagan's No. 1 State, C NE, Section 33-11-35, an old hole bottomed at 1,124 feet, is to be deepened.

Eddy County Development

In Eddy County, the Grayburg Oil Co.'s No. 1 Burch, NW SW, Section 19-17-30, northeast of the Artesia Pool, set the 12½-inch at 368 feet, and Leonard & Levers' No. 1 Haggerty, NE NW, Section 18-16-30, is drilling at 3,125 feet and reported showing some free oil in a porous lime. This well has had several good shows and is believed to be running about 200 feet higher than No. 1 Jackson, 3 miles southeast. In the Twin Mounds district, George F. Getty, Inc.'s No. 4 Dooley, SE NE, Section 23-20-29, which is the largest producer drilled in that pool, will be completed at 1,356 feet, the present depth. Latest reports are that it flowed 1,466 bbls. in 24 hours. This firm will go back into its No. 1 Nicholas, NW cor., Section 25-20-29, and drill it deeper. This well was completed a year ago at 1,384 feet and made 70 bbls. initial.

In Chaves County, the Transcontinental Oil Co.'s No. 1 Robbins, SE cor., Section 1-14-28, is drilling at 2,350 feet, and Snowden & McSweeney's No. 1 Merchant, NW NW, Section 27-15-23, is drilling out cement at 4,260 feet. L. B. Tannehill's No. 1 Butler, SE SE, Section 15-12-24, is drilling at 925 feet. The Transcontinental Oil Co.'s No. 1 McWhorter, SW NW, Section 6-3s-22, in DeBaca County, is drilling at 3,680 feet and is reported to have had a show of oil at 3,670 feet.

Rattlesnake Dome

The Continental Oil Co.'s No. 17 Santa Fe, Section 2-29-19, on the Rattlesnake Dome in San Juan County, shows no important change, the well flowing large quantities of water and oil over the top from between the 4¾ and 6¼-inch casing from a total depth of 6,771 feet while the 4¾-inch is being underreamed and lowered. It is making heads about every four minutes and the pressure rises to 900 pounds when shut in for a short time. The water comes from a 5-foot horizon above the oil and it is generally believed that when it is shut off the well will be a big one. The process of underreaming is slow on account of the great depth and pressure and it probably will be several weeks before the results are known. The Milwaukee-New Mexico Syndicate's No. 1 Beardsley, C NE Section 30-28-11, Kutz Canon district, is underreaming casing from 1,057 feet to bottom at 1,700 feet, and the Angel Peak Oil Co.'s No. 1 Garland, Section 11-28-11, is drilling below 3,000 feet.

The Continental Oil Co.'s compressor plant at Rattlesnake camp was destroyed by fire causing a loss of $50,000. P. F. Elmore, Raymond Bradshaw and Louie Keenan, employes, were severely burned. The fire is supposed to have started from a leaking connection which caught fire. The plant takes off the gas gasoline from the Rattlesnake wells and returns

(Continued on Page 66)

EIGHT WELLS IN TURNER VALLEY ARE GETTING CLOSE TO PRODUCTION

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Apr. 27.—In the Turner Valley Field, two Royalite wells, Nos. 14 and 20, have been placed in production, while two other tests, McLeod Oil Co.'s No. 1 and Vulcan Oils' No. 1, frozen off for some time, have come back. Eight wells are reported drilling in the deep lime and practically all these are getting close to the potential producing horizon. The next few weeks should witness the bringing in of several deep-lime producers.

Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, recently brought back into production in the deep lime at 5,040 feet, is making more than 25,000,000 feet a day of wet gas. Back pressure has not yet been applied, so that crude naphtha recovery is incomplete, though around 500 bbls a day. The company voted a bonus of $100 each to the dozen workmen who, at great risk to themselves, helped to get the well under control. Okalta Oils' No. 2, LSD 8, Section 1-20-3w5, which took production for some time from a light crude horizon in the Dakota at 3,170 feet, is being rigged up to drill to the deep lime. Arrangements being made will give Okalta Oils, Ltd., four complete outfits working simultaneously.

Another big development program is being launched by Calmont Oils, Ltd., following its acquisition of the Dallas Oil Co.'s acreage in the south end of the field. Four rotary tests will be started before July 1. Calmont's No. 1, LSD 2, Section 1-20-3w5, recently shot in the deep lime at 5,655 feet, is reported making new hole with increased wet gas showings. This test is close to Okalta's No. 1 but somewhat lower on the structure. It has been thought possible that a well so low on the flank of the structure might get crude oil rather than naphtha and wet gas in the Madison horizon.

Royalite's Operations

Royalite Oil Co.'s No. 14, LSD 4, Section 7-20-2w5, has been placed on production at 3,656 feet in the lime, with wet gas production around 10,000,000 feet. The diamond drill outfit is being moved to Royalite's No. 6, LSD 16, Section 31-10-2w5, which is frozen off after making an initial 200 bbls. a day from the lime at 4,531 feet; No. 6 will be cleaned out and possibly deepened. Royalite's No. 20, LSD 7, Section 12-20-3w5, has a light crude production in the Dakotas at 3,212 feet.

Royalite's No. 12, LSD 3, Section 13-20-3w5, is drilling at 3,980 feet. Royalite's No. 16, LSD 2, Section 12-20-3w5, is jarring on liner at 5,060 feet. Royalite's No. 17, LSD 13, Section 6-20-2w5, is being deepened at 3,960 feet. Royalite's No. 19, LSD 5, Section 6-20-2w5, is drilling at 4,318 feet. Royalite's No. 21 is drilling at 3,726 feet. Royalite's No. 23, NW Section 31-19-2w5, is drilling at 2,031 feet. Royalite's No. 24 has derrick up in LSD 15, Section 29-19-2w5. Royalite's No. 25 has cellar dug in LSD 8, Section 17-19-2w5.

Foothills' No. 4, LSD 1, Section 26-20-3w5, has derrick up and is rigging up for rotary test east of Foothills' No. 1. Dalhousie Oil Co.'s No. 7, LSD 11, Section 18-20-2w5, is working on derrick.

J. R. Walling of Tulsa, has arrived

(Continued on Page 121)

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Lively Drilling in California Likely

Big Wells in Deep O'Connell Zone at Santa Fe Springs Indicates Character of Other Tests Near Completion in Same Horizon

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Apr. 29.—The completion of several large flowing wells in the deep O'Connell zone at Santa Fe Springs during the past few weeks is the forerunner of numerous other producers expected to be completed in this horizon within the next 60 days and presages an era of intensive development during this period. Inability to effect a satisfactory water shut off in the immediately underlying Clarke zone has resulted in a change of development policy with the result that many operators will make a bid for production in the O'Connell zone rather than venture the probability of a loss in production which would undoubtedly be occasioned while excluding water in the Clarke horizon where considerable difficulty is being experienced.

This revised development program will mean the attainment of substantial production sooner than had been expected due to shortened drilling time. The Clarke zone will, however, become an important factor at a later date as some means will subsequently be developed to cope with the hot water problem which has delayed production due to the inability of operators to effectively shut off water. The temperature of Clarke zone water, approximating in some instances 200 degrees Fahrenheit, has prevented the setting of practically all types of cement even where ice water has been circulated in an effort to reduce the temperature.

No. 3 Koontz Is Biggest Well

The largest well producing in the O'Connell horizon at the present time is No. 3 Koontz of the Wilshire Annex Oil Co., which was completed early in the week flowing 9,865 bbls. of clean 34.1 gravity oil and 8,100,000 feet of wet gas daily. This project was bottomed at 6,861 feet and finished with a 4¾-inch oil string landed and cemented at 6,375 feet. No. 4 Koontz on the same lease was completed a few days ago at 6,718 feet and this well should be tanking oil in the near future as the water string has already been landed.

No. 6 Baker, another deep project of the Wilshire Oil Co., should also be on production shortly and this well will be followed by No. 1-A Crawford and No. 1 Eagle, both of which are below 6,250 feet at the present time. The Wilshire Oil Co. is running approximately 19,000 bbls. of light refining crude out of the Santa Fe Springs Field at the present time. A large part of the company's current production is being stored adjacent to the field where 2,000,000 bbls. of new steel tankage was recently erected.

Daily production at Santa Fe Springs reached a temporary high of 175,000 bbls. during the early part of the current week, due principally to the completion of several large flowing wells.

Effect on Curtailment Seen

Curtailment of production reduced this figure very substantially during the past several days, however, and the average for the week was considerably less than the temporary daily peak. The 167 wells producing from the Foix, Bell and Meyer horizons yielded a total of 26,000 bbls. per day, while the three lower zones contributed 149,000 bbls. toward the field's daily peak. The Nordstrum zone yielded 39,000 bbls. per day from 32 wells, while the Buckbee produced 60,000 bbls. from 75 wells. The O'Connell zone, now undergoing intensive development, made 49,000 bbls. per day from 11 wells. Only one producer has been finished in the Clarke zone up to the present time due to inability of operators to effect a satisfactory shut off. This well, J. A. Rohdes' No. 2 Sunshine, produced 1,500 bbls. daily. The O'Connell horizon showed the largest daily well production with 4,455 bbls., followed by the Clarke zone with 1,500 bbls., the Nordstrum zone with 1,226 bbls. and the Buckbee zone with an average of 800 bbls. daily.

The General Petroleum, the largest single operator in the Santa Fe Springs Field from both a development and production standpoint, is expected soon to augment its current production of approximately 35,000 bbls. per day by completing something like 18 wells in the deep zone within the next 30 days. This company has put five wells on production during the past 10 days, two of which were recompletions. These were No. 179-E, returned to production flowing 1,230 bbls. of clean 34.9 gravity oil and 3,050,000 feet of wet gas daily, and No. 186-E, which was recompleted flowing 420 bbls. on compressor. The former, originally finished doing 3,925 bbls. per day from the Nordstrum zone at 4,991 feet in January, 1929, was redrilled and deepened to 5,400 feet but was subsequently plugged back to 5,050 feet because of bottom water. No. 186-E, also originally completed in the Nordstrum zone, was first brought in doing 2,790 bbls. from 5,185 feet last January and subsequently carried down to 5,565 feet and finally plugged back to 5,001 feet.

Three More New Wells Finished

In addition to these recompletions, the General Petroleum finished three new wells which showed an aggregate initial daily production of 3,737 bbls. The company started off the week with No. 152-E flowing 1,440 bbls. of 32.4 gravity oil daily from 5,050 feet, the hole having been plugged back from 5,400 feet because of bottom water in the Nordstrum horizon. No. 179-D, another new well finished in the Nordstrum zone this week, tanked 875 bbls. daily from 5,054 feet, the hole having been plugged back from 5,347 feet. Both No. 152-E and 179-D are cutting approximately 10 per cent, due undoubtedly to formation water and will probably ultimately be carried down and completed in the O'Connell zone. On the Anderson property, the General Petroleum brought in No. 153-D flowing 1,422 bbls. of unusually clean 34.4 gravity oil daily from the Buckbee zone at 5,909 feet. This well was scheduled to be finished with a 5¾-inch oil string but was completed with a 3-inch perforated liner as the former froze at 5,630 feet.

Richfield Finishes Two Producers

The Richfield Oil Co. finished two new producers in the O'Connell zone on the Oscar Howard lease during the past week and expects to have another tanking oil within the next 10 days. The two new producers finished by the Richfield were Nos. 3 and 4, the former tanking 3,820 bbls. daily from 6,502 feet and the latter showing an initial daily production of 3,500 bbls. based on a four-hour test. This property, originally leased by Oscar Howard back in 1923, is being developed on a 50-50 basis with the Richfield Oil Co. doing the development.

Howard, incidentally, should complete his No. 6 Hathaway in the Clarke zone soon if he is successful in excluding the zone of hot water which has been bothering operators for the past several weeks. The Universal Consolidated Oil Co. finished No. 10 Blanchard in the O'Connell zone at 6,690 feet during the early part of the past week and this well tanked 5,370 bbls. of clean 34.4 gravity oil during the initial 24-hour test.

This company also brought in No. 4 O'Connell flowing 4,570 bbls. daily from the O'Connell zone at 6,532 feet and is putting the finishing touches on three other potential producers. Preparations are being made to finish the entire trio, now nearing completion, and they should be tanking oil within the next 10 days.

Long Beach

Long Beach, like other California fields, is reflecting curtailment measures initiated during the early part of the past week and the production of this district showed a substantial drop. The large number of individual producers operating in this field rendered the proration program a rather difficult one, especially since this curtailment affected such a large number of wells. A total of 930 wells in this area was affected by Umpire van Deinse's initial order, and it is quite obvious that it will be several weeks before everything is working smoothly.

Completions in this area during the past week were less numerous than heretofore, only two wells being put on production. The best producer chalked up during the past seven-day period was No. 2 Barnes of the Bush-Voorhies Oil Co., which came in flowing 2,012 bbls. of relatively clean 29.4 gravity oil and 1,600,000 feet of wet gas daily. This well, a former upper zone producer, was redrilled and deepened to 7,152 feet and finished with a 6⅝-inch combination string cemented through perforations at 6,125 feet. This company should also finish No. 2 Bell in the deep zone some time during the next few weeks.

The Shell, nearing the conclusion of its development program in the Long Beach Field, is putting the finishing touches on No. 8 Cherry Hill and No. 11 Nicholson, both of which should be finished in the near future. This company, incidentally, arbitrarily reduced its Long Beach production 12,875 bbls. in conformity with Umpire van Deinse's proration order. The last well finished by the Shell in this field was No. 5 Kent Garth, which came in flowing 725 bbls. daily after being redrilled and deepened from the upper to the lower zone at 7,847 feet. This project, like other recent completions in the immediate area, is cutting approximately 30 per cent.

Few Drilling Projects Under Way

The Richfield Oil Co., like the Shell and others, has also attained its maximum development with the result that it only has a few uncompleted drilling projects under way at the present time. The recent completion of No. 2 Meader, No. 1 Butler and No. 4 Bernstein flowing 2,592 bbls., 1,840 bbls. and 2,950 bbls., respectively, is considered of special significance by the Richfield's geological department as this trio are somewhat deeper than other producers located in the immediate vicinity.

These new producers apparently prove up a zone of greater saturation and, since it is the belief that this producing sand will be found for an additional 500 feet, preparations are being made to immediately redrill and deepen five old wells which had been producing from depths around the 6,000-foot level.

The addition of another 1,000 feet of hole is expected to greatly stimulate production especially since only a minimum drainage has been effected in each area. If the five wells scheduled to be redrilled and deepened come up to expectations they should produce approximately 10,000 bbls. of oil and 15,000,000 feet of natural gas capable of yielding approximately 30,000 gallons of natural gasoline daily.

With the Richfield, Shell and other large operators concluding their development work at Long Beach, the Dabney-Johnston Oil Corp. becomes the largest single operator from a drilling standpoint. This company, running 19 strings of tools at the present time, has 10 wells rotating ahead below the 5,000-foot level, several of which should be on production shortly. The Delaney Petroleum Co., under the personal supervision of A. J. (Art) Delaney, has also assumed an important position in current development with eight strings of tools in operation.

The Petroleum Securities has just staked location for No. 1 Bixby, an outpost located in the extreme northwestern end of the Long Beach Field, and this project will be watched quite closely in view of the recent successful completion of two large flowing wells by this company in the southwestern end of the field, which did not look any too promising when drilling was first undertaken.

Ventura Avenue

The Associated's field department at Ventura Avenue has just closed an exceedingly busy week, during which period two large wells were completed on the Lloyd lease, and preparations started to bring in two more. The new producers were Nos. 46 and 71, both located in about the south central part of the Associated's large and prolific Lloyd lease. The former came in flowing 1,690 bbls.

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	328,410	2,034,667
Fuel oil	.....	.....	.....	.....	49,950	.....
Diesel and gas oil	.....	.....	.....	.....	800,124	757,927
Gasoline	393,940	56,277	343,748	49,107	6,348,757	3,552,239
Naphtha distillate	.....	.....	.....	.....	81,750	.....
Coastwise—						
Crude oil	139,189	19,884	310,762	44,395	8,280,318	6,407,781
Fuel oil	642,083	91,726	113,005	16,144	7,138,226	6,410,018
Diesel and gas oil	17,170	2,453	105,270	15,039	474,662	478,722
Gasoline	155,838	22,263	224,610	32,087	3,510,838	4,018,641
Kerosene	6,008	858	.....	.....	15,195	24,415
Naphtha distillate	.....	.....	.....	.....	.....	171,566
Exports—						
Crude oil	156,180	22,311	135,990	19,427	1,685,553	812,042
Fuel oil	599,967	85,710	504,676	72,097	6,031,671	8,640,952
Diesel and gas oil	68,483	9,783	19,907	2,844	757,937	955,972
Gasoline	220,571	31,510	255,971	36,567	3,084,001	1,606,135
Kerosene	89,758	12,823	.....	.....	885,534	1,710,736

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	342,425
Gasoline	86,940	12,420	.....	.....	935,547	813,509
Lubricants	.....	.....	.....	.....	.....	138,769
Coastwise—						
Fuel oil	.....	.....	.....	.....	848,534	1,349,187
Diesel and gas oil	.....	.....	49,998	7,143	234,220	108,529
Gasoline	99,287	14,184	57,174	3,453	1,189,673	1,313,604
Kerosene	2,512	359	.....	.....	39,647	80,563
Exports—						
Crude oil	.....	.....	50,150	7,164	121,603	65,563
Fuel oil	.....	.....	.....	.....	241,671	800,623
Diesel and gas oil	.....	.....	60,500	.....	124,838	10,400
Gasoline	73,860	10,551	235,100	33,586	1,933,578	1,450,027
Kerosene	.....	.....	95,590	13,656	199,428	307,089
Lubricants	.....	.....	3,995	571	17,688	.....

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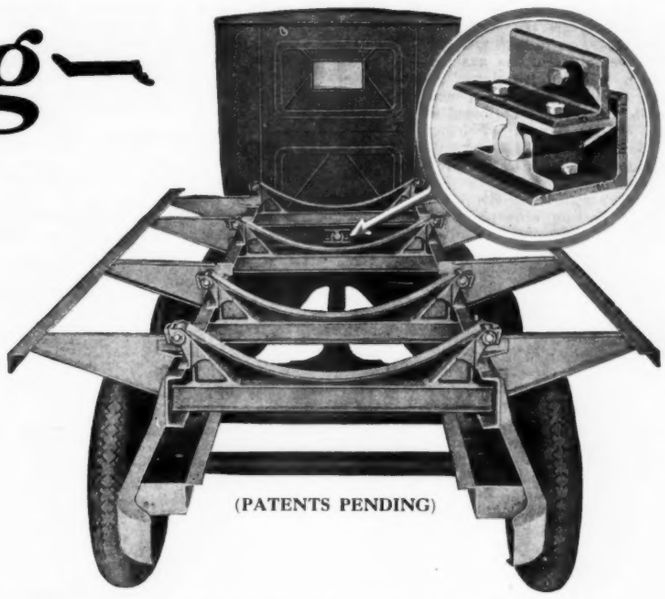

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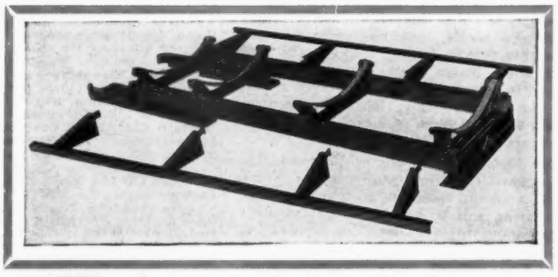
THE above photograph shows the detail of the STANDARD innovations in truck tank support. The Pivoted Socket Bearing (note enlargement in red circle) is 4″ long, made of cast steel, and is self locking. The Shock Absorbing Saddle Straps which cushion the tank against road jars, are pivoted on special steel brackets. No pins—no loose parts—assuring maximum wear and service with perfect, flexible suspension.

STANDARD *Tri-Point Suspension*

STANDARD Tri-Point Suspension protects both tank and chassis from twist and strain. The rear of the tank frame is anchored rigidly to the chassis on each side, providing two points of support; while the entire front rests on a single point of suspension — the new STANDARD Pivoted Socket Bearing (Patents Pending). This self locking, cast steel bearing keeps the horizontal axis of the tank always in the same plane, regardless of the irregular movements of the truck chassis. This flexible suspension relieves the tank of all twisting strains.



THIS photograph shows the improved STANDARD Truck Tank Frame or Support with removable brackets for can racks, barrel carriers, etc. Brackets may be placed in any position and are removable or changeable to take care of varying equipment needs.

Shock Absorbing Saddle Strap Supports

CRADLED in STANDARD Shock Absorbing Saddle Straps, the tank is cushioned against road shocks. The impacts and strains of transportation "die out" in the Saddle Straps without being transmitted to the tank. These Saddle Straps are made of mild steel, covered with webb belting, and pivoted on special steel bolts mounted in cast steel brackets. This cushion support prevents crystallization of the tank shell, the principal source of rupture and leakage.

The combination of Tri-Point Suspension and Saddle Strap Support keeps your tank fleet in constant service with the least time out for repairs.

Truck Beauty With Utility

STANDARD Truck Tank Units are designed on the most attractive lines; and in their handsome finish give a real advertising value and prestige for your Company. Tanks of every style and size in the newest designs to meet your requirements. STANDARD Tanks may be had with or without the New Improved STANDARD Tri-Point Suspension and new patented Shock Absorbing Saddle Straps. Saddle Strap Cushion Supports may be had without the Tri-Point Suspension feature, if desired.

Let us figure with you on your tank requirements.

Standard Steel Works

North Kansas City, Mo. U.S.A.

of 29.5 gravity oil and 4,600,000 feet of wet gas, while the latter blew in doing 3,060 bbls. of 30.1 gravity oil and 3,000,000 feet of saturated gas daily. No. 46 Lloyd was carried down to 6,250 feet and finished with a 6⅝-inch oil string, while No. 71 was bottomed at 7,365 feet and completed with a 5¾-inch oil string.

Both wells will be permitted to flow uninterrupted for 10 days following completion before being restricted in conformity with the curtailment program which became effective at 7 a.m. last Monday, April 22. The Associated has several other wells nearing completion in this field and it is quite possible that Nos. 59 and 73 on the Lloyd lease, No. 6 McGonigle and Nos. 9 and 17 on the Hartman property will be tanking oil in the near future.

The Pacific Western Oil Co., which recently completed No. 9 Orton flowing 1,792 bbls. of unusually clean 30.2 gravity oil daily from 7,021 feet, expects to complete No. 10 Orton and No. 5 Willett some time during the next 15 days. The Shell should also list several new wells for completion shortly as Nos. 29, 30 and 31 on the Gosnell lease and Nos. 32 and 35 on the Taylor property are rotating ahead in the oil sand at present.

The Shell, incidentally, spudded in two new wells on the Taylor lease last week and is at present building rigs for two more. The M. K. & T. Oil Co. may also be expected to augment its present production as No. 2 Foster at 6,450 feet and No. 1 Percy at 6,860 feet both look rather promising.

Elwood

The Barnsdall reduced its drilling operations in the Elwood Field of Santa Barbara County several weeks ago and instead of being obliged to run two strings of tools, as has been done in the past, lease obligations have been revised with the result that the company will alternate future drilling between the Bell and Doty leases. The last well completed in this field was No. 4 Doty, which at the present time has been beaned down to 3,350 bbls. of clean 35.1 gravity oil daily from 3,750 feet.

No further work will be done on this lease until after the completion of No. 7 Bell, a recent spud, in as much as only one string will be kept in operation until conditions improve. The Continental Oil Co. has shut in its No. 1 Franklin, a gas well located near Carpenteria in Santa Barbara County, and will center its efforts on the drilling of a second well located a few hundred feet northeast of the initial discovery in the hope that subsequent work will reveal the existence of another high gravity oil field similar to that found by the Barnsdall at Elwood. Santa Barbara County has become the mecca of prospectors since the discovery of oil by the Barnsdall and Rio Grande at Elwood and this section of the state may yield another new field at any time as it has enormous possibilities.

Midway-Sunset

Considerable development is getting under way in the Midway-Sunset Field of Kern County, especially in the area immediately adjacent to the Signal Oil & Gas Co.'s recent completion at Sunset in Section 8-11-23. The North American Consolidated, Signal Oil & Gas, Rio Grande, California Western Oil Co., Union Oil Co. and others are all contemplating additional work in the hope of duplicating the Signal's brown shale production. The Honolulu Consolidated may also precipitate additional development in the Midway-Sunset Field if its deep test, No. 85 in the Buena Hills, Section 8-32-24, comes up to expectations as it is reported to have picked up favorable indications in the Maricopa brown shale at 5,012 feet.

In the Republic area the Chanslor-Canfield Midway Oil Co. is drilling a new well in Section 7-32-23 on acreage offsetting holdings of the Republic Petroleum in Section 8-32-23, where the latter company also has one potential producer under way. The Shell has picked up some favorable indications in its No. 1 Perris, located in Section 15-32-23, but it is problematical whether the showings encountered are of sufficient importance to result in commercial production. On the Mascot property, east of the Union's No. 1 Western Petroleum, where evidence of substantial shallow production was encountered several months ago, the Standard is redrilling its No. 1, which is bottomed at 4,110 feet.

Lawndale

The Lawndale Field of Los Angeles Basin is still an enigma, although several wells tend to indicate the probable development of favorable production within a limited area. The Smith Petroleum Co.'s No. 4 Peck blew in a second time during the early part of the week flowing 2,000,000 feet of gas daily from 5,840 feet but in spite of this favorable showing the well is only making 105 bbls. of clean 33.6 gravity oil daily. It is quite possible, however, that oil production will increase as the volume of gas declines.

No. 1 Peck, located approximately 1,000 feet south of No. 4, has been holding up very consistently since completion, present production approximating 650 bbls. daily. No. 2 Howland of the Pacific Western Oil Co., located approximately 500 feet east of the Smith Petroleum Co.'s No. 1 Peck, is making 250 bbls. daily from 5,895 feet after being recompleted a few days ago. This well originally came in flowing 750 bbls. per day several weeks ago but water trouble necessitated additional work. The Petroleum Securities failed to secure a natural flow in its No. 2 Brown, located at the northeast corner of Inglewood and Market Streets, but this project showed an initial of 280 bbls. daily when put on the beam a few days ago at 6,290 feet.

Blows in as Gasser

The latest development at Lawndale was the blowing in of the Shell's No. 1 Barkdull as a gasser from 5,535 feet. This well, located north of Rosecrans Avenue, between Shoup and Mulholland Streets, is doing 3,000,000 feet of natural gas daily and, while no oil production gauge is available since it is still flowing to sump, it looks good for about 250 bbls. daily.

The Ethyl Oil Co.'s No. 1 O'Gorham which came in several days ago doing 1,500,000 feet of gas daily, will probably require further work as the daily output of 300 bbls., is cutting about 20 per cent salt water. It is quite evident from developments during the past few weeks that the northwestern part of the Lawndale Field is by far the most promising at the present time. The relatively large production of natural gas shown by wells in this area indicates the existence of probable production in the immediate vicinity, although no one has yet encountered the main body of sand if any such condition exists.

It is extremely probable that operators may be able to develop commercial production by selective drilling as none of the wells finished up to the present time have shown any large amount of oil sand. Practically all wells drilled in this field have shown water trouble at one time or another. If this water can be excluded by careful subsurface work, the several thin oil sands encountered may yield commercial production.

The Fullerton Oil Co. finished a new well in the Brea Olinda, or Fullerton Field, during the past week, No. 24 being brought in doing 440 bbls. of clean 27.4 gravity oil daily from 5,260 feet.

Southern California Wildcats

Discovery of the Lawndale Field by the Smith Petroleum Co. late last year resulted in the subsequent initiation of an intensive wildcatting compaign in the quadrangle north of the Torrance Field and west of the Newport-Beverly shear zone. The discovery of oil at Lawndale was almost totally unexpected and for this reason companies which had heretofore looked with disfavor on the quadrangle in question are now engaged in intensive exploration work extending almost uninterrupted from Inglewood south to Torrance, a distance of approximately 12 square miles.

Interesting wildcats are also under way in other areas in the Los Angeles Basin but the greater majority of present prospecting work is centered in the Lawndale quadrangle. One of the most promising tests drilling in the latter area at the present time is No. 1 Schwuchow of the Petroleum Securities, located south of Lawndale and east of Hermosa Beach. This wildcat, which is at the present time rotating ahead at 4,516 feet in brown shale streaked at frequent intervals with oil sand, may bear watching as it has shown stringers of oil sand on numerous occasions. A shallow promising sand found a month or so ago looked very encouraging, although a subsequent test failed to show production due to the inability to shut off water.

Shell Staked Location

The Shell Oil Co. recently staked location for a new test in this general area although this wildcat will be drilled in Section 20-3-14, approximately 2 miles north of the Petroleum Securities. The Allied Petroleum Co. was down 2,500 feet a few days ago in its test located about 1 mile northeast of the Petroleum Securities' No. 1 Schwuchow and also a similar distance southeast of the Shell projected test.

The Circle Oil & Gas is resuming work in a hole drilled and abandoned some

(Continued on Page 122)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	5,877	hd. sd. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	1,040	hd. sd. drilling
Bolsa Chica, No. 1 Temescal, Ventura Co.	4- 4-18	769	cleaning out
The Texas Company, No. 1 Hueneme, Ventura Co.	Lot 82	2,260	hd. sd. drilling
The Texas Company, No. 1 Wiley Canyon, Ventura Co.	2- 3-19	510	suspended
Superior Oil Co., No. 1 Santa Paula, Ventura Co.	14- 4-21	Rig	rigging up
Craise, F. A., No. 1 South Mountain, Ventura Co.	17- 3-21	Rig	suspended
Miley, E. J., No. 2 Casitas, Ventura Co.	7- 3-23	1,198	rd. sd. drilling
Miley, E. J., No. 1 Red Mountain, Ventura Co.	11- 3-24	Mtl.	building rig
Shell, No. 1 Simi, Ventura Co.	31- 3-17	2,862	hd. sd. drilling
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	3,765	suspended
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	6,740	suspended
Lockwood Oil Co., Well No. 1, Ventura Co.	28- 8-21	.....	grading
Milham Expltn., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well, idle
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well, idle
Milham Expltn., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well, idle
Milham Expltn., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well, idle
Milham Expltn., No. 5 Buttonwillow, Kern Co.	5-28-23	2,600	gas well, idle
Milham Expltn., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well, idle
Milham Expltn., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Expltn., No. 8-A Buttonwillow, Kern Co.	8-28-23	2,673	gas well, idle
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-28-23	190	suspended
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-27-23	4,950	br. sh. drilling
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	3,409	suspended
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	1,230	suspended
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	3,841	suspended
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-28-25	6,100	suspended
Elmer Oil Co., No. 1 Bena, Kern Co.	15-30-30	1,801	sd. sh. drilling
Elmer Oil Co., No. 1 Rosedale, Kern Co.	33-29-26	2,480	fishing
Shell Oil Co., No. 1 Lerdo, Kern Co.	5-29-27	1,512	hd. sd. drilling
General Pet., No. 1 McFarland, Kern Co.	25-26-25	1,080	hd. sd. drilling
Union, No. 2 San Emidio, Kern Co.	5-10-21	2,800	tar sand
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	1,770	cleaning out
Currency Pet. Co., No. 2 Jacalitos, Fresno Co.	14-21-14	260	suspended
Hornaday & Huggins, No. 1 Kerman, Fresno Co.	32-14-18	3,581	sd. sh. drilling
K. C. L. Oil Co., No. 1 Joaquin Ridge, Fresno Co.	7-19-15	114	suspended
Thomas Pet. Co., No. 1 Krayenhagan, Fresno Co.	33-22-17	568	suspended
Union, No. 1 Huasna, San Luis Obispo Co.	34-32-15	3,470	br. sh. drilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	3,290	hd. sd. drilling
Midwest Refining Co., No. 1 Huasna, San Luis Obispo Co.	2-33-15	.....	location
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,600	hd. sd. drilling
Shell, No. 1 Guadalupe, Santa Barbara Co.	25-10-35	3,035	sd. sh. drilling
Shell, No. 2 Guadalupe, Santa Barbara Co.	26-10-35	1,855	sd. sh. drilling
Shell, No. 2 Goleta, Santa Barbara Co.	36- 5-31	3,340	sespe, drilling
Union, No. 1 Buel Canyon, Santa Barbara Co.	X- 7-31	Mtl.	building rig
Western Gulf, Point Conception, Santa Barbara Co.	X- 5-33	Rig	rigging up
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	2,193	sd. sh. drilling
Standard, No. 1 Tortuga Canyon, Santa Barbara Co.	.....	2,320	sd. sh. drilling
Olympic Oil & Refg. Co., No. 1 Mesa, Santa Barbara Co.	X- 7-28	2,456	suspended
Bankline Oil Co., No. 1 Mesa, Santa Barbara Co.	X- 4-27	4,348	sespe, drilling
Exeter Oil Co., No. 1 Mesa, Santa Barbara Co.	X- 4-27	3,490	sespe, drilling
Nevada Standard, No. 1 Goleta, Santa Barbara Co.	19- 4-28	3,415	sd. sh. drilling
General Pet., No. 1 Elwood, Santa Barbara Co.	21- 4-28	1,592	sd. sh. drilling
Padre Oil Co., No. 1 Dos Pueblos, Santa Barbara Co.	18- 4-27	2,763	sd. sh. drilling
System Oil Co., No. 1 Orcutt, Santa Barbara Co.	36-10-34	498	suspended
American Oil Co., No. 1 Summerland, Santa Barbara Co.	33- 4-25	714	sd. sh. drilling
Getty, Geo. F., No. 1 Summerland, Santa Barbara Co.	33- 4-25	3,341	sd. sh. drilling
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	Mtl.	building rig
Channel Oil Co., Well No. 1, Santa Barbara Co.	29- 4-27	6,304	suspended
Channel Oil Co., No. 1 Fellowship, Santa Barbara Co.	29- 4-27	915	br. sh. drilling
Continental, No. 1 Carpenteria, Santa Barbara Co.	33- 4-25	4,130	suspended
Continental, No. 2 Carpenteria, Santa Barbara Co.	33- 4-25	163	sd. drilling
Elwood Consd., No. 1 Goleta, Santa Barbara Co.	8- 4-29	3,310	recemented
Colusa Oil Co., Well No. 1, Colusa Co.	31-15- 4	598	hd. sd. drilling
Italo American, Well No. 1, Colusa Co.	20-13- 3	710	hd. sd. drilling
Nuna Oil Co., Well No. 1, Colusa Co.	19-15- 5	400	suspended
North Counties Oil Co., Well No. 2, Humboldt Co.	36- 2- 1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2- 1	3,041	redrilling
Applegate & Renshaw, Well No. 1, Merced Co.	24- 6-10	3,700	hd. sd. drilling
Kuhns, H. L., Well No. 1, Merced Co.	8-12-19	371	gr. sd. drilling
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	3- 3- 3	1,544	cemented
Foster & Hammill, Well No. 1, Alameda Co.	21- 3- 3	465	suspended
R. Y. Hanlyn, Well No. 1, Alameda Co.	3- 5- 2	360	suspended
Shell, No. 1 Dudley, Monterey Co.	15-22- 9	2,211	hd. sd. drilling
Union, No. 1 San Lucas, Monterey Co.	8-22- 8	Rig	rigging up
Marland, No. 1 Bradley, Monterey Co.	32-24-11	4,880	hd. sd. drilling
Tux Oil Co., No. 1 Los Gatos, Santa Clara Co.	15- 8- 1	848	sd. sh. drilling
Dudley Ridge Synd., No. 1 Tulare, Kings Co.	12-23-19	1,450	cleaning out
Associated Pet., No. 1 Lewis Creek, San Benito Co.	5-19-10	460	sd. drilling

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	5,487	suspended
Ohio Oil Co., No. 1 Playa Del Rey, Los Angeles Co.	22- 2-15	4,000	hd. sd. drilling
Petroleum Securities, No. 1 Hermosa, Los Angeles Co.	32- 3-14	4,516	br. sh. drilling
Western Drlg. Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	8,015	abandoned
Standard, No. 1 Hawthorne, Los Angeles Co.	5- 3-14	2,271	sd. sh. drilling
Circle Oil Co., No. 1 Gardena, Los Angeles Co.	23- 3-14	4,280	cleaning out
Allied Pet., No. 1 Redondo, Los Angeles Co.	28- 3-14	2,208	sd. sh. drilling
Shell, No. 1 Redondo, Los Angeles Co.	20- 3-14	.....	location
Mont. Park Pet. Co., No. 1 Jepson, Monterey Park	25- 1-12	3,937	suspended
Jackson, R. W., No. 1 Whittier, Los Angeles Co.	19- 2-11	753	hd. sd. drilling
Burlington Pet. Co., No. 1 Compton, Los Angeles Co.	17- 3-13	1,070	sd. sh. drilling
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Pugh Miller Drlg. Co., No. 1 Calabasas, Los Angeles Co.	6-1- 17	1,330	br. sh. drilling
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,631	br. sh. drilling
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,106	hd. sd. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Richfield Oil Co., No. 1 Puente, Los Angeles Co.	9- 2-10	4,489	sd. sh. drilling
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	Rig	rigging up
Shell, No. 1 Coyote, Los Angeles Co.	28- 3-10	Mtl.	building rig
Union Oil Co., No. 1 Richfield, Los Angeles Co.	13- 3- 9	Rig	suspended
Western Drlg. Co., No. 1 Richfield, Los Angeles Co.	21- 3- 9	2,693	sd. sh. drilling
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	Rig	rigging up
Pico Dome, No. 1 Hasley Canyon, Los Angeles Co.	14- 3-16	345	sd. drilling
Calif. eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	3,517	suspended
Coastline Oil Co., No. 1 Devil Canyon, Los Angeles Co.	21- 5-17	514	cleaning out
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,098	gr. sd. drilling
West. Drlg. & Prod. Co., No. 1 Newport, Orange Co.	18- 6-10	4,461	suspended
West. Drlg. & Prod. Co., No. 2 Newport, Orange Co.	18- 6-10	2,261	has showing
Travis Drlg. Co., No. 1 Buena Park, Orange Co.	36- 3-11	Rig	rigging up
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23- 7- 3	975	cleaning out
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,232	suspended
Imperial Valley Oil Co., Well No. 1, Imperial Co.	32-11-10	2,740	sd. sh. drilling
Davenport O. & G. Co., No. 1 San Marcos, San Diego Co.	30-12- 8	847	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	1,865	bl. sh. drilling

West Virginia Well Flows 415 Barrels

South Penn Company Gets Gusher in Geary District, Roane County. Largest Initial Production of Year

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Apr. 29.—Few wells were completed, one only having a large initial production. For many months the West Virginia Field has been trailing with nothing better than light pumpers. It has now come to the front with a gusher, as gushers are now rated in the old Eastern fields.

This time it is the South Penn Oil Co. that is in luck. When it drilled its No. 91 on the O. D. Stockley farm, in Geary district, Roane County, near the Clay County line, into the Big Lime formation, the well flowed 415 bbls. the first 24 hours. The initial production is the largest of any well drilled in West Virginia this year. The well is 600 feet south of No. 90 on the same farm and just a little in advance of production.

The Southeast Ohio fields had fewer completions than the preceding week and only two better than light pumpers. Unless better results prevail during the latter part of the month the amount of new production will be the smallest in a number of years. The deep sand territory is the only hope for new production in Southeast Ohio and it has been fairly well developed. The Hope Construction & Refining Co. is now trying for a producer below the Clinton sand. It is drilling at 4,600 feet on the S. W. Black farm in Rush Creek Township, Fairfield County. The Trenton Rock should be the first formation encountered.

The Manufacturers Light & Heat Co.'s well in Morris Township, Washington County, Pennsylvania, on the Day farm, is showing exceptionally good staying qualities. It was drilled in several weeks ago and is still holding up at 150 bbls. a day.

SOUTHEAST OHIO

In the SE of Section 15, Perry Township, Muskingum County, the Rymilper Oil Co. has completed and shot in the Clinton sand a test on the John M. Jones farm which swabbed 125 bbls. the first 24 hours. In Jackson Township, same county, the Pure Oil Co. completed in the same formation No. 5 on the Hoover Brothers farm. It produced 125 bbls. the first 24 hours.

In Section 26, Muskingum Township, Washington County, the Miracle Oil & Gas Co. has a light pumper in the Macksburg 500-foot sand at No. 3 on the James Klein farm. In Section 26, Center Township, Monroe County, F. H. Ward and others have completed No. 3 on the F. H. Ward farm. It is a duster. In Section 24, Washington Township, F. A. English & Co. have a 5-bbl. pumper at a second test on the C. English farm. In Sunbury Township, C. W. Paine and others have a duster on the E. A. & L. H. Dean farm.

In Section 5, Jackson Township, Perry County, Perry Sturm and others have a 3-bbl. pumper on the Margaret M. Griggs farm. In Reading Township, the Preston Oil Co. has a duster on the L. C. Bowman farm. In the same township, the same company has a rig up on the William Hummel farm.

In the SW of Section 2, Clay Township, Muskingum County, Lupher, Denman and others have completed in the Clinton sand a test on the Theodore Comes & Co. farm. It is a duster at a total depth of 3,620 feet.

Meigs County

Development work in Meigs County is holding up with nine wells drilling and two rigs up. In Salisbury Township, W. N. Shipe and others have a gasser in the shale on the Dolly Deihl farm. In the same locality, Frank Seifheit and others have a rig up on the C. J. Greenler farm. In Sutton Township, the Preston Oil Co. has a light pumper in the Berea grit at No. 3 on the State of Ohio lands. In Chester Township, the Pure Oil Co. has a light gasser at No. 3 on the Minnie Kautz farm. In the same township, R. C. Tyree and others have a light pumper in the Berea grit on the Pittsburgh Coal Co.'s property. In the same township, B. M. Tyree has a light pumper in the same formation on the Hannah M. Capehart farm. No. 3 on the same farm is drilling. In Cross Creek Township, Jefferson County, A. H. Sutton & Co. are due in the sand at No. 7 on the Charles Williams farm.

In Section 2, Wheeling Township, Harrison County, 1½ miles south of Harrisville, Ohio, the Preston Oil Co. completed in the Berea grit No. 7 on the Samuel M. Henderson farm. It produced 18 bbls. the first 24 hours.

Vinton County

In Section 3, Knox Township, Vinton County, Koontz and others have a very light pumper in the Berea grit on the John Martin farm. In the same section and township, the Co-operative Oil Co.'s second test on the Garfield Brooks farm is a 6-bbl. pumper in the same formation. In Section 1 the Townsend Oil & Gas Co.'s second test on the David Hunter farm is a 6-bbl. pumper in the Berea grit.

WEST VIRGINIA

In Harvey district, Mingo County, F. H. Yates has a good gasser in the Maxon sand on the Alta Phelps farm. In the same district, F. H. Yates has an 8-bbl. pumper in the same formation on the George Workman-Cowden farm.

In DeKalb district, Gilmer County, the Hope Construction & Refining Co. shot and cleaned out Nos. 6 and 8 on the R. L Weaver farm, both old wells, producing almost nothing, and increased the production of each to 6 bbls. a day.

In the SE of Section 28, Elk Township, Noble County, B. C. Robinson and others have completed a test on the Fred Springer farm. It is a 10-bbl. pumper in the Macksburg 500-foot sand.

Gassers in Guernsey County

In Section 10, Westland Township, Guernsey County, the Cambridge Gas Co. has completed a test on the Alfred A. Kerr farm. It is a gasser in the Squaw sand good for 250,000 feet. In Section 12, Chatham Township, Medina County, the East Ohio Gas Co.'s second test on the Steven Jelencsies farm produced 30 bbls. the first 24 hours after shot in the Berea grit.

In the SW of Section 23, Salisbury Township, Meigs County, W. N. Shipe & Co. have a very light gasser on the D. Deihl farm. In Sutton Township, B. M. Tyree has started to drill a second test on the William R. Lott farm. No. 3 on the same farm is drilling. In the same township, R. A. Tyree & Co. are drilling a second test on the Pittsburg Coal Co.'s property.

In Section 24, Center Township, Noble County, Richard L. Moore and others have a very light pumper in the Buell Run sand at No. 4 on the Lemuel Moore farm. In Enoch Township, Section 31, unknown parties are drilling on the Frank Barnhart farm. In Pike Township, Coshocton County, the Leonard Oil & Gas Co. has a light pumper in the Clinton sand on the Hattie Russell farm. In Hopewell Township, Perry County, the Whit Mar Oil & Gas Co. is due in the sand on the W. A. Arline farm. In Hopewell Township, Licking County, the Ohio Fuel Supply Co.'s Alfred Fulk farm is a gasser. In Jackson Township, Perry County, J. Elder and others are drilling on the Alva Poling farm.

In Ames Township, Section 31, Athens County, the Wiser Oil Co.'s test on the O. D. Jones farm is a duster. On a part of the same farm, Bode and others have a light gasser in the stray sand below the Berea grit. In the same section, D. T. Ormdoff has a gasser in the same formation on the Charles Green farm. In Section 24, Marion Township, Morgan County, Charles Woodyard & Co. have a very light pumper in the Cow Run sand at No. 8 on the Charles Woodyard farm. In Ames Township, the Ohio Fuel Supply Co. is drilling on the L. Smith farm.

Washington County

In Marietta Township, Washington County, Arthur Mackey and others have a duster on the John M. Mackey farm. In Lawrence Township, Read & Co. are drilling on the Elmer Meabold farm. In Warren Township, F. J. Coffman has a light pumper at No. 4 on the Coffman heirs' farm. In Monroe Township, Coshocton County, the Ohio Oil Co. is due in the Clinton sand on the Ellsworth McKelvey farm. In Franklin Township, Monroe County, Gordon G. Green has a duster on the Leasure farm.

In Section 22, Hopewell Township, Perry County, the Whitmer Oil & Gas Co. has completed in the Clinton sand a duster on the W. A. Axline farm. In the SE of Section 12, Reading Township, the Preston Oil Co.'s test on the L. C. Bowman farm is a duster in the same formation. In Section 16, Bowling Green Township, Licking County, the Ohio Fuel Supply Co.'s test on the Noah Johnson farm is a fair gasser in the Clinton sand.

In Mannington district, Marion County, Monroe & Laughlin have a gasser in the Gordon sand at a second test on the W. T. Morris farm. In the same district, Continental Coal Co. has a duster in all sands at a second test on the John Haddix farm.

In McComas district, Cabell County, the Empire State Gas Co. has completed a gasser in the Gordon sand on the J. W. Savage farm. In the same district, the West Virginia Gas Corp. has drilled No. 20 on the S. and M. Adkins farm to a total depth of 3,470 feet and shut down. In Grant district, Ritchie County, Robert Elder & Co. have a Big Injun sand gasser on the M. A. Starkey farm.

Gassers in Kanawha County

On Leatherwood Creek, Big Sandy district, Kanawha County, the United Fuel Gas Co. has completed No. 2,512 on the King Land Co.'s property. It is a gasser in the Big Injun sand. On Rich Creek, same district, the Brawley Oil & Gas Co. has a gasser in the Weir sand on the Frank Rose farm. The well is also showing a little oil in the same formation.

Gassers in Roane and Calhoun Counties

In Geary district, Roane County, the United Fuel Gas Co. has a gasser in the gas sand at No. 3,586 on the Brown, Goshorn & Swan farm. In Smithfield district, H. W. Bowers has a gasser in the Salt sand on the D. D. Snodgrass farm. In Spencer district, the Hope Natural Gas Co. has a light show of oil in

(Continued on Page 116)

WILDCAT IN MUHLENBURG COUNTY FLOWING SEVEN BARRELS AN HOUR

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Apr. 29.—The feature of the Kentucky Field since the last review was the bringing in of an almost wildcat venture estimated at 200 bbls. or better in 24 hours, which makes a large area look inviting. This new well is owned by the Ohio Oil Co., and on the R. O. Kennedy farm, 2½ miles south of Greenville, near the center of Muhlenburg County. It is reported flowing at the rate of from 7 to 10 bbls. an hour. This find is of great importance and indicates that good production may be found in Christian and Todd Counties to the south and west, where good looking structures are known to exist which have had no tests drilled on them. To the west of Muhlenburg is Hopkins County, which has one productive oil pool that has been producing for about 10 years, which would make one believe that the extreme southwestern portion of the State will develop some exceptionally good producing areas. Drilling to the southwest from the Ohio, Daviess and Hancock Fields is more expensive as the oil formations are found at greater depth, around from 2,000 to 2,500 feet, but the oil is of high gravity.

W. P. Hurst was in charge of the drilling of the Ohio Oil Co.'s test on the Kennedy farm, and W. W. Donaldson, field superintendent, visited the new find which is not very far from the well brought in on the J. H. Jackson farm, November 23, 1928. Farm maps of Muhlenburg County appear to be a scarcity. The Kentucky Geological Survey under the supervision of Willard Rouse Jillson, director and state geologist of Kentucky, has recently completed a topographical map of Muhlenburg County showing oil and gas wells, coal mines and fault pattern with stratigraphic section, and has also just brought out a map of Estill County in the eastern part of the State showing the various pools, etc., in that county as well as most of the counties in which development work has been done over the entire State.

Just at present the new Bartlett Pool, to the southwest of Taffy and south of the Ambrose-Weller Pool in Ohio County, is attracting much attention and so far as developed is looked upon as one of the best of the late discovered areas in the western portion of the State. Hupp, Duff and others made a purchase in this pool when it was in its infancy and made no mistake as eight wells on two of the purchased leases, Ellis Bartlett and L. Trodgen tracts, show a daily production of 800 bbls., and the last completion which is not included in this production had an initial of 200 bbls. The White Plains Oil & Gas Co. (Snowden-McSweeney interests), has just completed a well south of the Bartlett farm reported around 200 bbls. initial, making the south side of the Bartlett lease look good for large producers.

Considerable test work is under way in various parts of Ohio, Daviess, Hancock, McLean, Breckenridge and Henderson Counties.

Eastern Kentucky Wells

The best of the late completions reported from the eastern part of Kentucky is Hupp, Duff and others' No. 8 on the J. M. Frazier farm, on Short Fork, in District 31, of Johnson-Magof-

(Continued on Page 119)

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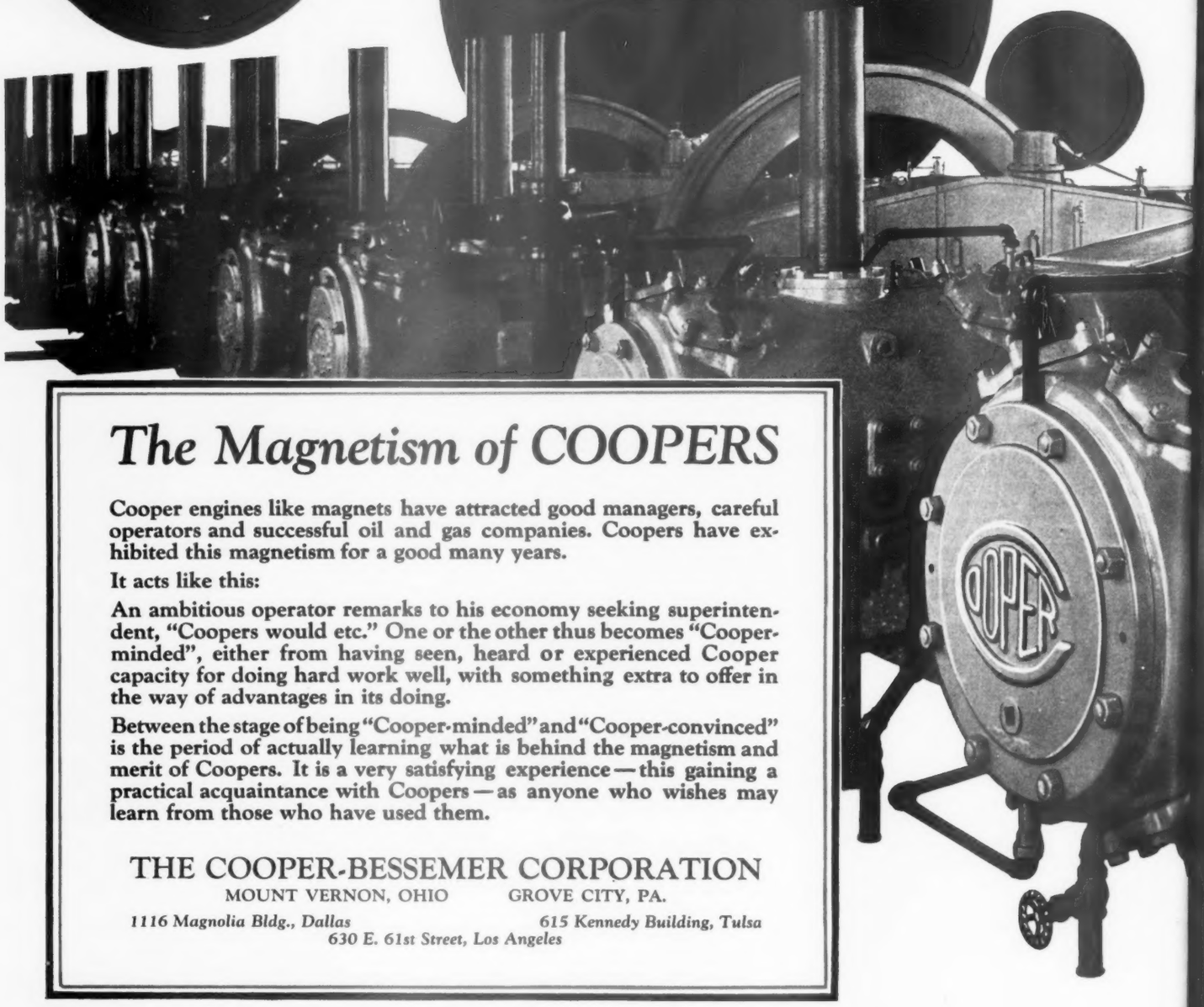

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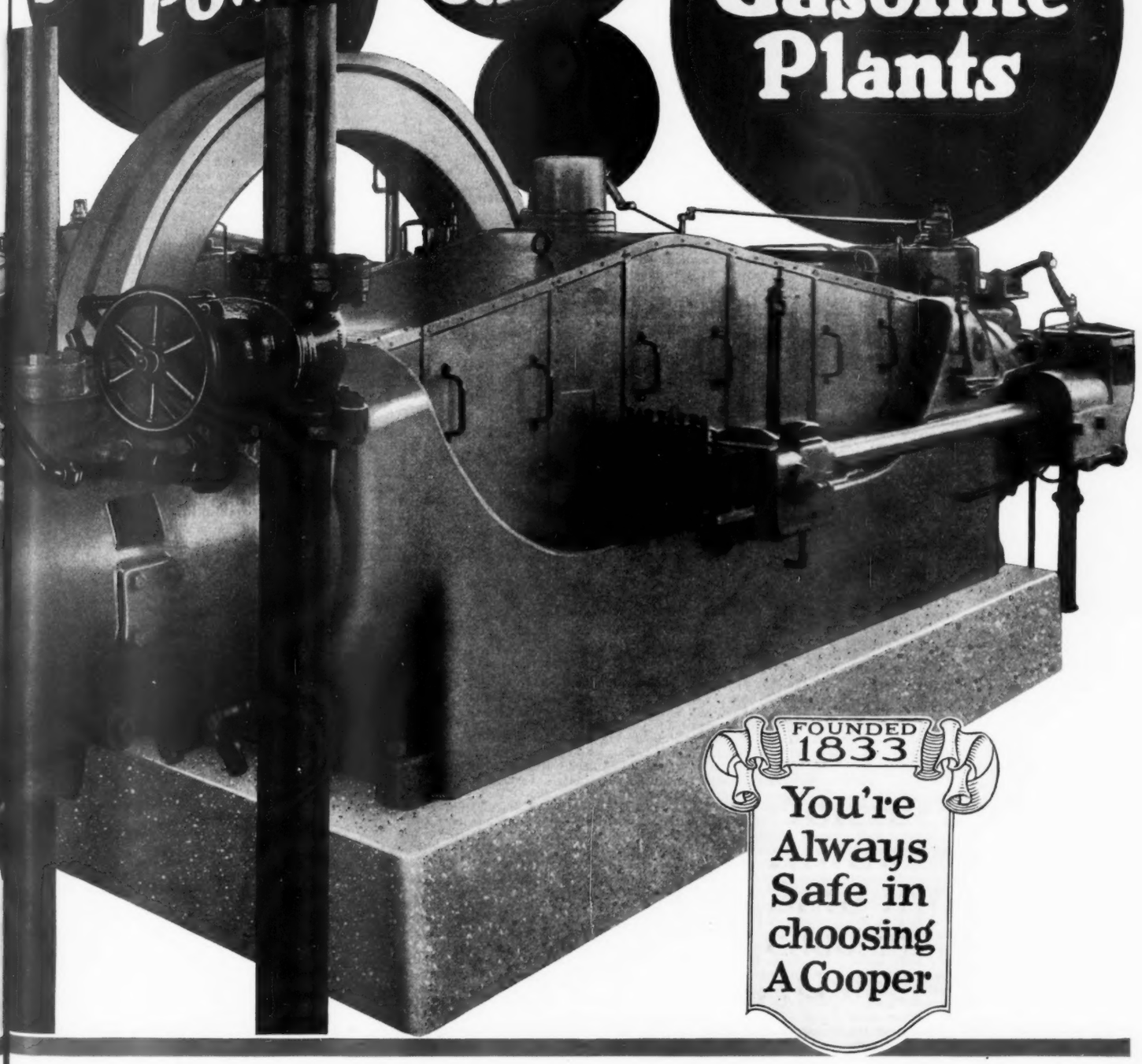

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You're Always Safe in choosing A Cooper

New Field in Ashland County, Ohio

Shallow Berea Sand Field Thought Found in Jeromesville Area. Perry County, Indiana, Becoming Active

By Whit

Staff Correspondent, Central West Fields

FINDLAY, Ohio, Apr. 29.—Few completions were reported from the Central West Field outside of the Central Ohio division, where work is very active at this time. In the old Lima Field of northwestern Ohio, the Waterville Gas & Oil Co. brought in a fair gas well on the Eliza Hutchinson farm, along the River Road, Section 21, Waterville Township, Lucas County, the gas being found at 1,207 feet. This additional volume will be of great help to the town of Waterville where the gas is piped.

In Eagle Township, Hancock County, Star & Clark's No. 11 on the Alice Stauffer farm, Section 5, produced an initial of 25 bbls. In Liberty Township, Byron Porter is drilling on the Hancock County Infirmary farm, Section 10. Robert Mitchell, trustee, is starting a second test on the Alva Beard farm, Section 16, Big Lick Township, same county, while Watts and Harmon are drilling a second well on the O. S. Bell 362 acres, in Section 18, Delaware Township, in the eastern portion of Hancock County, in what is known as the Wharton Field. The initial well on this farm in a second gauge showed a volume of 554,000 feet of gas and a rock pressure of 462 pounds, which is an unusual find for this day in the old Trenton Rock, and with its big rock pressure shows strictly virgin territory. The lease owners will continue drilling operations as long as commercial gas wells are found as there is a ready market for all the gas that can be produced. The gas is sweet compared with that in the near-by Forest Field.

CENTRAL OHIO

Real excitement prevails in southern Ashland County where the much sought prolific shallow Berea sand oil field of the Jeromesville area seems at last to have been found. Early in the year, Faulkner and Smith, drilling upon the Guy Humm 81 acres, in the S half SE, Section 29, Mohican Township, brought in the discovery well making 30 bbls.; No. 2 coming in for 40 bbls., and No. 3 for 22 bbls., this production being found in the shallow Berea at from 650 to 700 feet. Two of these wells made ten 100-bbl. steel tanks of oil in February. These three Humm wells are now producing steadily 30 bbls. daily, with No. 4 drilling. Directly offsetting No. 3 Humm to the south, same parties drilled in No. 1 G. W. Obrecht 160 acres, Section 32, same township, good for 25 bbls., and in the northeast part of the section.

The real excitement came on March 14, when Robinson Brothers, drilling 3 miles ahead of the Humm wells to the south upon the E. A. Devinney 29 acres, Section 9, Lake Township, struck a real shallow gusher. This Devinney well struck top of Berea at 587 feet, drilled 47 feet into a total depth of 634 feet, with all exceptionally good pay sand, the well filling up 250 feet naturally while drilling in, with a large amount of gas. Immediately after the well started to flow making 100 bbls. the first 24 hours with an estimated 1,000,000 feet of gas. Same parties drilled their No. 2 recently with 72 feet of Berea sand and this well also started to flow immediately after shot, making a 56-bbl. flow through the casinghead. This latter well tested 300,000 feet of gas before shot, with 750,000 feet after shooting. Robinson Brothers, owners of the new Devinney gushers and some 2,000 acres surrounding, have ten 100-bbl. steel storage tanks upon the lease all filled with oil awaiting completion of the Buckeye pipe line which is nearing completion and being laid from a point 8 miles to the south. The oil is 41 gravity and goes in under Corning grade. The Ohio Fuel Gas Co. is understood to be making arrangements to take all the Berea sand gas from this new field.

Zink and others, drilling on a town lot in the village of Mohican, brought in a nice gas well with a fair showing of oil and this well, purchased by H. C. Farmer, Newark operator, will no doubt make a nice oil producer when given a shot. Robinson Brothers are drilling No. 3 Devinney, and also drilling No. 1 E. A. Cable 40 acres, Section 9. The Kemrow Co., of Wooster, is drilling No. 1 on the W. Snyder 86 acres, Section 20. Cumberland Petroleum Co., Cleveland, Ohio, is starting No. 1 Peter Denny 158 acres, Section 19; Harmon, Watts & Geiger, drilling at No. 1 on the David Horn 80 acres, Section 4, located midway between the Humm and Devinney wells; Davidson and others are drilling No. 1 D. B. Chesrown 45 acres, Section 3, while H. C. Farmer made a location for No. 1 W. E. Paull in 155 acres, Section 5. Robinson & Chandler made location for No. 1 H. C. Young 80-acre farm, Section 22, and Edmons and others will start a well at once on the Harry Horn 40 acres, Section 21. Curtis and others of Lodi, Ohio, have a location announced on the Metcalf farm, Section 22, while to the north in Mohican Township, the Ohio Fuel Gas Co.'s No. 1-3,085 on the Hattie B. Metcalf 72 acres, in the west half of the southwest quarter of Section 28, and adjoining the Humm farm to the east, is reported a dry hole in the Berea with only 9 feet of Berea sand. The Cumberland Petroleum Co. made location for No. 1 on the I. I. Metcalf 120 acres, in the southwest quarter of Section 21, Mohican Township.

New Locations

Many additional locations have been made and numerous drilling machines are now en route to the new field which is known as the Mohican Field, being some 6 miles south of the recent development at Jeromesville. The sand in the new Mohican Field greatly resembles that found in the Lodi-Chatham Berea oil field of Medina County, Ohio, opened in 1918 with its 1,800 producing oil wells, where wells as high as 300 bbls. were found at 450-550 feet, paying for themselves the first 24 hours, this new Mohican Field having a much greater amount of gas, and the oil being much higher in gravity.

Lake Township is practically 100 per cent under lease as is also the southern portion of Mohican Township. Many operators and companies hold acreage in this new field, the Ohio Fuel Gas Co., Logan Gas Co., Ohio Oil Co., East Ohio Gas Co., Robinson Brothers, Faulkner and Smith, Ralph Brothers, Cumberland Petroleum Co., S. A. Slagel, Cleveland, Ohio; Carl Weidman, of Cleveland, W. Zink, W. F. Glass, Ira Hazelett, C. Edmons and many others of Newark, Ohio; J. H. Harmon, E. M. Geirger, of Mansfield, Ohio; R. A. Watts, Columbus, Ohio; Curtis and others of Lodi, Ohio; John A. Neiding of Cleveland, the Kemrow Co., of Wooster, with a large amount of acreage; Davidson and Mock of Mansfield; Brown Brothers of Ashland and many others.

Acreage is closely held and high prices are demanded and received. Because of the unusually large gas showings found with the oil it is thought the greater part of Lake Township may be found productive of oil or gas, the latter with a ready market. Drilling is easy and cheap; wells requiring from 40 to 100 feet of 8-inch drive pipe and about 220 feet of 6-inch casing, finishing on an average of 650 feet and requiring less than a week to complete.

Field Work Increasing

Since the last review of the Central Ohio Field, there has been a total of 30 wells completed, of which 7 were producers with an initial production of 172 bbls., 9 dry holes and 14 gas wells. There have been 14 new locations and 37 wells have started drilling, a total of 51, the highest number for many months, indicating that the field is coming along with rapid strides, especially the Ashland and Summitt County areas.

In Ashland County, Orange Township, the Logan Gas Co. developed a nice gas well in No. 2-3,079 on the Carl B. Jones, Section 22, and a dry hole in No. 1-3,067 on the Ira C. Richards, Section 14. The Kemrow Co. also made a good gas strike in No. 4 on the James M. Fluke, Section 22, same township, at from 2,534-46 feet. In Perry Township, McIntyre and others drilled a dry hole in a second test on the Edward Gardner, Section 17. In Mohican Township, Faulkner and Smith's second well on the George Obrecht farm, Section 32, is reported dry as is the Logan Gas Co.'s No. 1-3,085 on the Hattie B. Metcalf, Section 28. Same company is drilling No. 2-3,081 on the Nova Banking Co. tract, Lot 97, Sullivan Township.

In Lorain County, Daugherty and others are drilling on the P. Bousck, Section 19, Carlisle Township. Ohio Fuel Gas Co. is drilling No. 2-3,498 on the E. and E. Rice, Lot 54, Grafton Township.

In Wayne County, the Ohio Fuel Gas Co. has a good gas well in No. 1-3,425 on the William Swope, Section 7, Congress Township, and made a location on the Martin T. Ruff, Section 18. Logan Gas Co. struck a light gas well in the Berea sand in No. 1-3,075 on the Garber Berg farm, Section 14, Sugar Creek Township, but concluded to go deeper.

In Holmes County, the Ohio Fuel Gas Co. staked a location for No. 2-3,424 J. J. Harshberger, Section 6, Paint Township. East Ohio Gas Co. drilled a fair gas well in No. 3 C. O. Ledbetter, Section 14, Richland Township.

In Ashtabula County, Conneaut Township, Schaeffer Brothers are drilling No. 1 Harry White, Lot 48, and Ross Riggs is drilling No. 1 W. P. and J. M. Doyle, Lot 48, Jefferson Township.

Richland County

In Richland County, Monroe Township, the Ohio Fuel Gas Co.'s No. 1-3,459, William E. Pritchard, Section 21, is a duster. Same company is drilling No. 1-3,492 Phoebe Herring, Section 33. In Worthington Township, the Logan Gas Co. is drilling No. 1-3,090 J. C. Stevens, Section 24.

In Knox County, Brown Township, the Ohio Fuel Gas Co.'s No. 1-3,469 on the J. A. Reed, Section 11, is a very fair gas producer.

In Coshocton County, Pike Township, the Leonard Oil & Gas Co.'s second test on the Isaac Russell, Section 13, is reported to have produced 12 bbls. initial from 3,214-88 feet. Ohio Fuel Co. is drilling on the Harry M. Rine, Section 4, same township, and the Leonard Oil & Gas Co. is drilling on the Levi Norris, Section 19.

In Summit County, Franklin Township, F. A. Brendall and others found a fair gas well on the Clara Raber, Section 26. This firm is starting an active drilling campaign among which are: No. 1 Nellie Sours, Section 35; No. 1 Frank G. Dailey, same section; No. 1 William H. Habel, Section 26; No. 1 Bertha Snyder, same section, and No. 1 C. and M. Rinninger, Section 23, all in Franklin Township. In Greene Township, the same firm drilled a dry hole in No. 1 John King farm, Section 21, also a light gas well in No. 1 Carl Swartz, Section 18, same township. East Ohio Gas Co. is drilling No. 1 Hebry Steese, Section 21, and George Eagon, made a location on the Samuel Harring, Section 17.

In Licking County, Fallsburg Township, the Preston Oil Co.'s No. 6 Ashcraft farm, is reported good for 2 bbls. In Perry Township, same company's No. 4 Ollie Lear, Section 15, is a 5-bbl. pumper from 754 to 768 feet. Whitehill Gas Co. is drilling No. 9 A. A. Ashcraft, Section 9. Wehrle Gas Co. is drilling on the James Iches, Section 4, Hopewell Township.

In Muskingum County, Perry Township, the Rymilper Oil Co.'s No. 1 Harry E. Dutro farm, in the third quarter of the township, topped the Clinton at 3,998 feet; got pay sand from 4,005-22 feet and total depth of 4,037 feet, and reported practically a worthless well, but with a shot increased its production to an estimate of 75 bbls. It flowed 15 bbls. before given a shot. Ohio Fuel Gas Co. made a location on the P. E. Arnold, in the third quarter near the Dutro well. In Hopewell Township, the Hope Construction & Refining Co. is drilling No. 4 Joseph Varner, Section 5. Atha Drilling Co. is drilling No. 1 Ida B. McLaughlin farm, in Falls Township.

Athens County

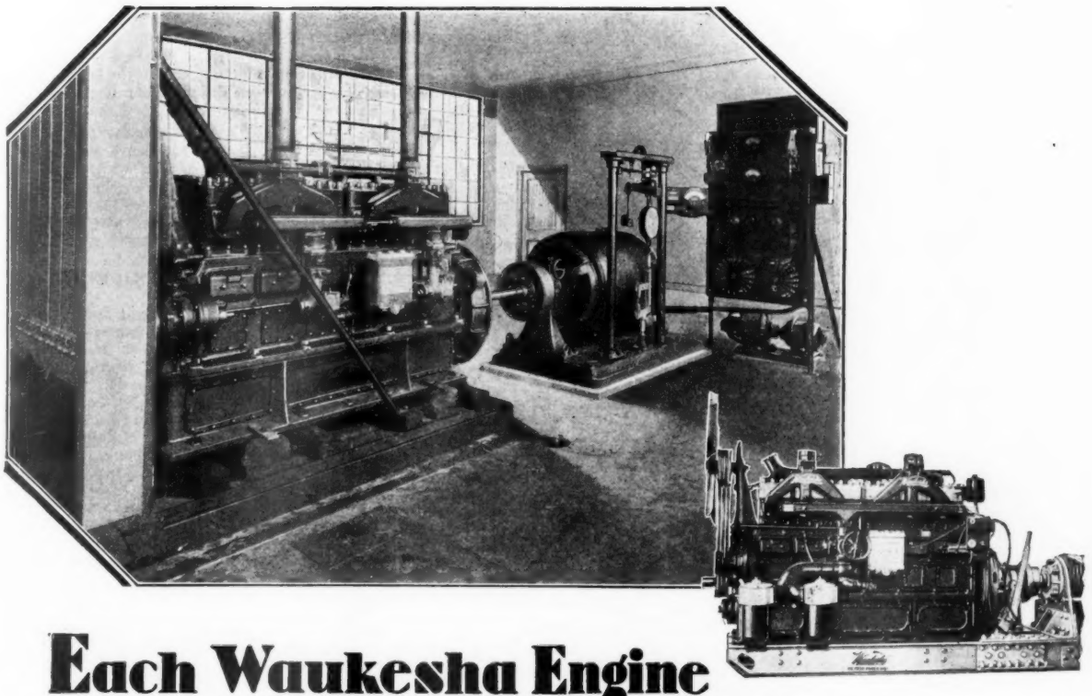
In Athens County, Ames Township, the Ohio Fuel Gas Co.'s No. 1-3,450 on the Theodore Fleming, Section 5, is a light gas well in the lower Berea at from 1,400-15 feet, total depth 1,421 feet. Same company is drilling No. 2-3,515 Euriah Brooks, Section 3. Orondorff and others' No. 2 O. D. Jones is a fair gasser in the lower Berea at from 1,406-28 feet, total depth 1,430 feet. Charles Fox and others are drilling No. 1 on the Robert Bean, Section 13. In Berne Township, the Ohio Fuel Gas Co. is drilling No. 11-3,484 on the Black Diamond Coal land, Section 23, and made three locations in Section 34, for No. 1-3,520 J. E. Gifford; No. 2-3,521 and No. 3-3,522 on the C. D. Henry farm. In Carthage Township, McFarr and Cody's second test on the Loona T. Runion, fractional Section 36, is a light gas well in the Maxon sand from 1,068-87 feet. Jaynes, Wysong and others are drilling on the John Buck, Section 2, Lodi Township.

In Meigs County, Sutton Township, Tyree and others, or the Twenty-five Associates Oil Co.'s No. 7 William Carnahan farm, Section 11, is reported good for 8 bbls. from the first Cow Run at from 571 to 595 feet. Ohio Fuel Gas Co. is drilling deeper its No. 1-2,428 on the Nial Salser, Section 24. The Penn Grit Oil Co. expects to drill deeper its test on the Hanna Capehart, Section 30, which is a small stripper in the upper Berea sand at from 1,680 to 1,700 feet and try out the lower Berea sand.

In Jackson County, Franklin Township, the Penn Ohio Gas Co. has an average gas well in No. 5 on the Levi Evans, Section 2, in the Clinton at from 2,634-49 feet, total depth 2,696 feet. Ohio Fuel Gas Co. made a location on the Cora Brenton, Section 18, Milton Township.

In Vinton County, Knox Township, the Co-operative Oil Co.'s second test in the Garfield Brooks, Section 3, is credited with the first 24 hours' production at 20 bbls. in the Berea at from 1,167-74 feet. Townsend and others are drilling

(Continued on Page 115)



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WAUKESHA RICARDO HEAD ENGINES

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

MEETING PARAFFIN PROBLEM

Do you know of any chemicals to use in old wells to dissolve paraffin so it can be bailed out? Old wells in this section of the country are paraffined up so they will have to have the paraffin removed by some such process or be abandoned.—W. M. N.

Several solvents and heat-generating chemicals are being used to clean paraffin from oil wells. Casinghead gasoline is one of the best cheap solvents. Heated oil, benzol, naphtha and ordinary gasoline are others.

Mixtures of caustic soda and metallic aluminum which react with each other chemically and generate a high degree of heat when they come in contact with water are the most commonly used reagents. Such mixtures can be purchased under various trade names. Sodium peroxide reacts with water to form free oxygen, which together with the heat of reaction tends both to melt and to burn the paraffin from the well. Experiments with this reagent have been tried for years without marked success.

Calcium carbide has also been tried but never come into extensive use for this purpose.

The use of sodium peroxide is dangerous unless special precautions are taken to keep it dry and also keep it from spilling on the derrick floor or ground around the well. Unless such precautions are taken the reagent may start fires.

Other methods of meeting the problem are the continual return of hot oil into the wells, steaming, keeping the sand covered with fluid, use of electrical heaters, and burning at the bottom of the hole. These methods have been described in the following publications of the United States Bureau of Mines, which you can obtain by addressing your request to The Director, United States Bureau of Mines, Washington, D. C.:

"The Paraffin Problem in Oil Wells," by R. Van A. Mills. Reports of Investigations, Serial No. 2,550, December, 1925.

"Methods and Tools for Removing Paraffin from Flowing Wells," by C. E. Reistle, Jr. Reports of Investigations, Serial No. 2,802, April, 1927.

"Methods of Dealing with Paraffin Troubles Encountered in Producing Crude Oil," by C. E. Reistle, Jr. Technical Paper 414, 1928.

For further information on the paraffin problem you might refer to Chapter 4, pages 227 to 284, of Petroleum Development and Technology in 1927, published by the American Institute of Mining and Metallurgical Engineers, New York. This book contains excellent papers and discussions on the paraffin problem.

A condition that generally is overlooked is the plugging of the producing sands by the deposition of calcium carbonate in the pores. This trouble is common in your part of the country. It can be detected by the appearance of white chalky material between the grains of sand in the fragments shot or cleaned from wells and by the effervesence when such samples of the sand are placed in hydrochloric acid. Success has been obtained by cleaning the sand with hydrochloric acid poured down the wells.

You will find several questions and answers on the paraffin problem by referring to the page of Field Problems and Their Solutions in The Oil and Gas Journal of November 10, 1927; February 2, 1928; June 14, 1928, and November 22, 1928.

You would do well to obtain a copy of the bibliography on the paraffin problem which has been prepared for free distribution by Miss Florence W. Lundell, technical librarian, Tulsa Public Library, Tulsa.

It is suggested that you study as many of the publications on this subject as you can. This problem is a serious one and difficult to solve.

CONTROLLING WATER RATIO

Can you suggest to me some practical field methods of controlling the water ratio in oil well cementing practice?—T. N. O.

The method of controlling the amount of water used per sack of cement depends largely upon the mixing method employed. If the cement is mixed by hand it is a comparatively simple matter to rig up small water tanks and actually gauge the water being mixed with a certain number of sacks of cement.

Where the cement is mechanically mixed with water delivered into the mixer under pressure it is also possible to gauge the water in tanks before it passes through the pumps. The rate at which water is delivered to the mixer is then controlled by regulating the speed of the pump. With a little experience this can be done successfully, especially if the water ratio of the mixed cement is checked frequently.

One method suggested for checking the water ratio in mixed cement (neat cement) is to use ordinary grocery scales and a tin can.

In preparation for the actual testing work, cement is mixed with different proportions of water, the water ratio being carefully noted. The tin can is filled with a sample from each batch of this cement as it is mixed and then weighed, after which it is carefully washed. These results are plotted on a curve showing the relation between the weight of the canful of mixed cement and the water ratio of the cement.

After this it is a simple matter to weigh a canful of the mixed cement and tell immediately, by referring to the curve, what the water ratio of the cement is.

IS PRESSURE INCREASED?

Can you tell me whether the air lift increases or decreases the pressure on the face of the producing sand in a well?—N. E. E.

This question is too general as here stated. You must know what other condition the air lift is to be compared with, as it will increase the pressure under some conditions and decrease it in others.

WHY IS IT CALLED THAT?

BISCUIT CUTTER

The practice of obtaining cores which provide a record of the formations passed through in rotary drilling has become common in wildcat wells, but little coring is done in cable tool drilling, largely for the reason that samples of formations brought to the surface by the bailer provide fairly satisfactory information. Short cores sometimes are obtained with standard tools, however, by use of a short core barrel sharpened at the bottom and run on the jars. This barrel, 6 to 8 inches long, is forced into the formation by jarring. The operation is so like that employed in the kitchen in cutting out dough for biscuits that this abbreviated core barrel has come to be designated as a "biscuit cutter."

Two factors which enter into the work which any gas volume can perform are volume and expansion range. A well which does not produce a gas volume sufficient to supply the work for natural flowing will head up to a point where the liquid head counterbalances the formation pressure. Here it will stand dead as the pressure throughout the formation is equalized, the pressure on the face of the sand at the bottom of the hole being as high as that in the formation. To produce oil from this well by any method will necessarily decrease the back pressure on the face of the sand and in that part of the formation from which the oil is produced. It will be appreciated at once that a differential pressure must be created before any more oil can be forced into the hole and that this differential pressure is obtained by lowering the pressure on the face of the sand.

Theoretically, the greater the rate of pumping or swabbing the greater is the tendency to reduce the height of the liquid column in the well. This tends to decrease the back pressure on the face of the sand and to increase the differential created through the formation. This causes a greater rate of inflow into the hole and therefore increases the production. This will not apply to all wells, as a back pressure too low may cause a travel of natural gases or water through formation which will not properly utilize their energy and less production will result. Ultimate production must be kept in mind and if formation energies are wastefully used, ultimate loss will result.

Certain pressure is required for the air in the air lift in order to supply energy for the operation and the flowing pressure maintained must necessarily be exerted against the formation pressure. As the well is produced, the pressure in the formation surrounding the well decreases, decreasing the differential and consequently decreasing the production rate. It must necessarily follow that at some time the formation pressure will decrease to the minimum pressure at which the air-lift may be operated, at which time pressure conditions again are stabilized as in the beginning and no production can be obtained.

At this time, theoretically, pumping or other methods of operating with less back pressure should obtain a larger production, which will be the case unless the same condition already described also exists, that is, that the lower back pressure wastefully utilizes the formation gas energy.

INJURIOUS TO SUCKER RODS

Is it true that sucker rods are apt to be damaged if they are laid on the ground or on the walk between the derrick floor and the engine house? I have done this for years and I have never noticed that it hurt the rods in any way. I was told recently though that it is a bad practice. If there is any reason why it should not be done I would like to know what it is.—T. D. R.

Yes, this practice is responsible for much damage to sucker rods, because unless they are laid perfectly straight and flat they are likely to take on what is called plastic deformation. If the rods are carelessly piled across one another so as to be pressed and held out of true alignment, or if they project beyond the end of the walk so that the ends bend downward of their own weight, or if they are laid on rough ground so that they are not straight, they soon tend to conform with such irregularities and take on more or less permanent bends. Furthermore, rods handled in this way are likely to become bent or otherwise damaged by carelessness on the part of workmen. Serious damage has been caused by trucks being driven over rods lying on the ground, and by heavy tools and irons being thrown on top of rods lying on the derrick floor or walk. The best way to avoid these things is to use rod hangers in derricks or special rod racks in which to lay the rods out straight and keep them protected.

MEANING OF TORQUE

I wish you would explain to me the meaning of the word "torque" which I see used a great deal in articles about oil-field equipment. Sometimes it seems to mean a pulling force. In others it appears to refer to a force that has a turning or whirling effect.—D. H. G.

In the simplest possible terms torque means twisting force. For example, the torque on a rotary drill pipe is said to be high when the bit tends to hang up and it becomes difficult to turn it. Drill pipes frequently twist off when the torque becomes excessive.

The office dictionary says torque is "that which produces or tends to produce rotation or torsion." Sometimes torque is defined as turning effort or energy. It usually is measured in inch or foot pounds. Torque must not be confused with power, for power is the rate of work and brings in the element of time and speed.

To determine definitely the degree of torque it must be measured with precision. By way of illustration, let us take a shaft with a pulley of 24-inch diameter. Wrap a rope around the pulley, anchoring one end securely to the pulley, and hang weights on the free end. The maximum weight that the turning effort on the shaft is capable of lifting on the free end of the rope multiplied by the diameter of the pulley indicates the torque of the pulley. Suppose the turning effort is sufficient to lift 100 pounds, then 100 pounds times 24 inches equals 2,400 inch-pounds or 200 foot-pounds.

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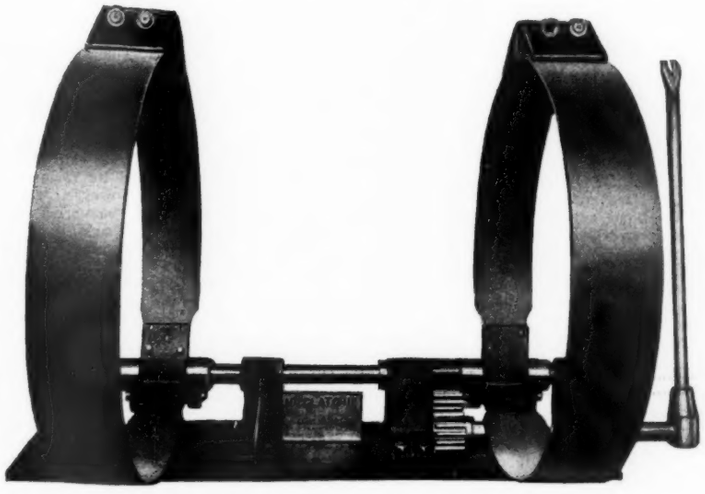

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ROCKY MOUNTAIN AREA

(Continued from Page 50)

the gas to the wells for stabilizing the production.

UTAH

The Continental Oil Co.'s No. 1 Boundary Butte, in San Juan County, southeastern corner of Utah, continues to run along with the same company's No. 17 Rattlesnake in northwestern New Mexico in interest. This well, in the NW NW Section 22-43-22, is drilling at 4,935 feet and had more gas at 4,913 feet. It is in the lower Pennsylvanian. The gas now amounts to 7,000,000 to 9,000,000 feet a day, part of which is shut off behind the 5⅝-inch casing. Drilling is going ahead slowly due to heavy pressure. It is necessary to put the water in the hole with the bailer, which makes the process rather tedious and the depth made each day is correspondingly small. It is at a stage where important events may develop at almost any time.

The Utah Southern Oil Co.'s No. 1 King, Section 13-23-20, on the Salt Valley Dome in Grand County, is bottomed at 3,767 feet and cleaning out at 3,600 feet. It is in a conglomerate of shale, anhydrite and gypsum. There is a heavy pressure below the bottom of the hole and the formation is being forced upward, necessitating the constant cleaning out. The pressure has forced the material up to a maximum of 3,400 feet, or 367 feet off bottom. The Navajo Petroleum Co.'s No. 1 State, SW SE Section 2-20-21, in the Cisco district, is drilling at 2,835 feet after passing through a 10-foot sand topped at 2,811 feet which showed some saturation. It is not yet in the Dakota.

In Wayne County, the Phillips Petroleum Co.'s No. 1 Shick, C NE Section 16-27s-16, is drilling in hard lime at 4,910 feet.

In Uintah County, the Western Venture Corp.'s No. 1 Spahr, Section 8-5s-21, on the Dog Valley structure, is drilling at around 1,100 feet and carrying the 8¼-inch. The 10-inch is at 900 feet. Same firm's No. 1 Krumvieda, Section 6-5s-21, Vernal monocline, set the 4¾-inch with a packer at 1,296 feet and appears to have made water shutoff. The 6¼-inch was set at 1,264 feet, but failed to entirely shut off the water.

COLORADO

Five completions were reported this week in Colorado, the only producer in that number being the Continental Oil Co.'s No. 3 Vezetti, NE NE Section 11-19-70, in the Canon City Pool in Fremont County. It was drilled to 3,610 feet and plugged back to 2,500 feet, where it is making 20 bbls. on the pump. In this same district the Continental abandoned its No. 5 McKenzie, SE NW Section 1-19-70, at 3,250 feet, and its No. 5 D. F. Hall, NW SE Section 35-18-70, at 2,370 feet, both being dry. The White Eagle Oil & Refining Co.'s No. 1 Fordham, NW cor. SW Section 9-2s-96, on the Piceance Creek structure in Rio Blanco County, was abandoned at 432 feet after being unable to recover the 15½-inch bit, for which fishing had been in progress at intervals for several months. The rig was skidded 10 feet to the north of the old location and is preparing to spud in on No. 1-A Fordham. In Las Animas County, the Okla-Colo Oil & Gas Co.'s No. 1 Doherty, SW SE SW Section 32-34-60, suspended operations at 1,250 feet. The hole was through the Dakota and Morrison and is believed to have just entered the Permian red beds when operations ceased. It is cased and will be available as a water well.

The tests in northwestern Colorado which are at a critical stage are making progress slowly toward the objectives. The Texas Production Co.'s No. 11 Knowlton, SE cor. Section 35-5n-91, on the Moffat Dome, is swabbing water preliminary to drilling out cement at 4,516 feet. The 6¼-inch was set at 4,543 feet on top of the objective Sundance and if a shutoff has been successful, the drill will tell the tale within a few days. The same company's No. 5 Walter Wick, Section 10-4-92, another Sundance test, is drilling at 4,775 feet in sandy lime. The greater depth of this well is due to its high surface location, being on the top of a hill. The same company's No. 4 Belle Dennis, NE SE Section 7-6n-86, on the Tow Creek Dome in Routt County, another Sundance well, is coring at 4,276 feet and its fate is expected to be known within a few days.

Iles Dome

On the Iles Dome in Moffat County the Texas Production Co.'s No. 36 Lloyd, SE cor. Section 21-4n-92, on the southwestern flank, is bottomed at 3,640 feet and carrying the 6¼-inch at 3,611 feet. The hole was swabbed dry from the Morrison and the quantity of oil found in that formation is not believed to be commercial and it will be carried on down to the Sundance. The Midwest Refining Co.'s No. 24-8D Parkinson, SE NW Section 22-4n-92, is drilling at 3,305 feet in red shale and carrying the 8¼-inch at 3,085 feet. Thomas McLaughlin and others' No. 1 Williams, NW SW Section 2-3n-92, is below 3,300 feet in sandy shale and carrying the 8¼-inch. The horizon has not yet been definitely identified. This is a test of the fault zone to the south of the Iles Dome proper. Operators on the Iles Dome contemplate seeking permission of the Department of the Interior to curtail drilling operations in the proven area of the Iles Field as the developed production already is considerably in excess of requirements. The lease requirements provide for continuous drilling until one well is put down on every 40 acres. Production already is pinched to about one-tenth of capacity.

Vineland District

In the Vineland district southeast of Pueblo, the Continental Oil Co.'s No. 1-A Shaw, SE NW NW Section 3-22-63, 30 feet south of the discovery well which was never tested, commenced spudding on April 23. It will go to approximately 1,200 feet and definitely disclose the formations cut and the results of the discovery which started the boom in that area. C. W. Sheffer's No. 1 State-Lubers-Oliver, NW SE Section 4-22-63, one-half mile to the southwest of the discovery, set the 8¼-inch at 1,040 feet to shut off water in the first Dakota, but the cement did not hold and it was decided to drill another 100 feet before attempting another shutoff. Total depth is 1,120 feet. More water was encountered at 1,064 feet. A show of oil in the shale break between the Dakota and the Lakota was reported.

The Christy-Frantz Oil Corp.'s No. 1 Mannerich, NW SW Section 34-21-63, one-half mile to the north of the discovery, is resuming at 1,050 feet. It had water at 1,005 feet, but will be carried down to the Morrison. The same firm's No. 1 Vey, SW NW Section 13-22-63, which drilled to the top of the Morrison sand at 1,425 feet, after passing through water in the Dakotas, also is resuming, and its No. 1 State, SW cor. NW Section 16-22-63, is drilling at 915 feet. The Apex Oil Syndicate's No. 1, SW NW Section 35-21-63, is reported drilling at 450 feet, and G. E. Stevenson's No. 1 Isis, SW NE Section 1-23-63, had water at 620 feet and probably will not be drilled deeper. The Amarillo Production Co.'s No. 1 Pahl, SW NW Section 35-22-63, topped the Dakota at 865 feet and had water at 895 feet. The water was cased off at 985 feet on top of the Morrison formation. The Dickason-Hench Oil Co.'s No. 1 Stanbeck, SW NW Section 19-22-62, had water over the top of the casing at 1,064 feet, 63 feet in the sand. It will be cased off and continued to the Morrison. The Security Oil Trust's No. 1 Bush, NW NW Section 14-22-63, is setting 8¼-inch at 615 feet, and the Giant Ledge Oil Co.'s No. 1 State-Dudley-Lubers, NW SW Section 4-22-63, spudded and shut down. In the northeastern corner of Pueblo County, near Tacony, the Boone Oil & Gas Co.'s No. 1 Ritter, NW Section 33-18-60, is bottomed at 3,000 feet and pulling the 6¼-inch to straightream to bottom to shut off water. This well has been drilling at intervals since 1925 and is reported to have had several good shows.

In Bent County, the Marland Production Co.'s No. 1 Pipe Springs, NE SE Section 27-27-49, is resuming after being shut down at 3,987 feet since last November, due to frozen water lines. Boiler repairs are being made while a new water line is being laid.

Larimer County

In Larimer County, the Continental Oil Co.'s No. 3 Mitchell, SE NE Section 6-9n-68, Wellington Dome, which was showing water at 4,370 feet, is drilling at 4,388 feet, and its No. 1 Fleming, SE NW Section 6-9n-68, is drilling at 730 feet. The Five Square Oil & Gas Co.'s No. 1-A State, SW SW Section 16-4n-69, Berthoud structure, is bottomed at 3,500 feet waiting for 6¼-inch casing which has been purchased. The Frontier at 3,100 feet was 28 feet thick, compared with 8 feet in No. 1, half a mile to the north. It showed some oil saturation in the top. The bottom is believed to be less than 100 feet off the Muddy sand.

In Lincoln County, the Kelly Oil Co.'s No. 1 State, SE NW Section 36-14-57, has succeeded in sidetracking bit and getting the casing past it. It is drilling at 1,690 feet in a conglomerate with shows of live green oil.

In Mesa County, the High Line Oil Syndicate's No. 1 Peerless, NE cor. Section 23-8s-104, is drilling at 2,479 feet and is out of the bentonite and into the Mowry shale just above the Dakota.

In Arapahoe County, the McDeb Drilling Co.'s No. 1 Fitzsimmons, NE Section 7-4s-66, has lowered the 8¼-inch to 3,560 feet and is sidetracking casing 100 feet off the old bottom.

In Jefferson County, the Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor. Section 24-4s-69, is bottomed at 1,830 feet and lowering the 8¼-inch to carry.

WYOMING

A considerable increase in the number of wells resuming after being shut down for the winter is reported in Wyoming. There are some areas, however, where operations will not again be normal for another month or more. The Mule Creek Field in northeastern Wyoming will resume runs on May 1 unless there is an unfavorable turn of weather conditions. The Ohio Oil Co. is the principal producer and the Illinois Pipe Line Co. runs the oil to market. Two wells were completed during the week. The Wyoming Oil Field Co.'s No. 19-SD-2, SW Section 24-40-79, in Salt Creek, was completed in the second Sundance at 2,905 feet with an initial production of 97 bbls. The Prairie Oil & Gas Co.'s No. 1 Chilcote, Section 35-56-95, on the Little Sheep Mountain structure in Big Horn County, is being abandoned at 3,035 feet in the granite. This was an important test, as it had for its purpose the exploration of the Deadwood formation, which has been drilled in only one other locality in Wyoming. Had it been a producer it would have caused extensive drilling below present producing horizons, particularly in the Big Horn Basin. It had a small flow of noninflammable gas at 1,370-81 feet in the base of the Madison lime and another show at 1,475 feet in the top of the Deadwood. A water sand was drilled into at 2,858 feet in the base of the Deadwood.

In Park County the Producers & Refiners Corp. is resuming in its No. 1 Beck, Section 29-52-100, Oregon Basin Field, after being down for several months. It is rigging up at a total depth of 563 feet. The same company is also resuming its No. 1 SE NW Section 7-57-97, on the Frannie, or Sage Creek structure. It is bottomed at 1,950 feet and equipment is being overhauled. Producers & Refiners is starting a second well on this same section, for which it is digging cellar. The Midwest Refining Co.'s No. 36 Rosenberg, SE cor. NW Section 25-58-98, on the Frannie Dome, is bottomed at 2,060 feet and cleaning out and underreaming, and its No. 1 Kirk, SE cor. Section 23-58-98, is drilling at 2,408 feet in the red beds and drawing near to the horizon which was productive in the discovery well drilled in last year by the Rosenberg interests.

Big Horn County

In Big Horn County, the Producers & Refiners' No. 3, NW NW Section 24-56-98, on the Garland Dome, also is resuming. It was bottomed at 2,708 feet when drilling was suspended for the winter. It had been having considerable trouble in getting through a soft and sticky bentonite formation and a rotary rig had been erected to take the place of the cable tools with which the well had been drilled to that depth. Rigging up is now in progress. The Cross Gas Co.'s No. 1, NE Section 23-56-97, cemented the 6¼-inch at 3,920 feet. It is reported to be through the Dakota and to be headed for the Sundance.

In Hot Springs County, the Texas Production Co.'s No. 1, NW SW Section 23-45-100, on the Skelton Dome, is resuming after being idle for some time on account of weather conditions and bridges being washed out. It is bottomed at 1,950 feet and running the 13⅜-inch casing. The size of the casing indicates this is to be a deep test though the Cloverly, in which it is hoped to find light oil, is expected at around 2,400 feet.

In Converse County, John Ackard's No. 2, SW NE Section 28-31-69, McKinley Switch, is resuming at 3,070 feet in an unidentified black formation. This well is being drilled by a wheat man of Colby, Kan. More than a year ago it was reported to be 1,100 feet in the granite at 2,695 feet, though it was claimed the last 200 feet was in lime found beneath the granite. It is said to be a doodlebug location and though $160,000 has been expended upon the test and geologists express the opinion it has no chances, the owner appears to continue confident some important results will be obtained.

In Fremont County, the Producers & Refiners Corp.'s No. 7, SW NW Section 14-32-95, Sand Draw, is bottomed at 2,917 feet, where it blew in last November with an estimated flow of 65,000,000 feet of gas. All kinds of trouble have delayed the operation which at present is breaking down drill rods. It is being drilled with a 10-inch diamond drill and the purpose of the operator is to get through the heavy gas horizon and test the lower formations for oil.

Natrona County

In Natrona County, the Fargo-Western Oil Co.'s No. 8, Section 3-33-83, in the Poison Spider district west of Casper, is drilling at 1,845 feet, and M. C. Weisman's No. 3, SE cor. Section 36-37-82, North Casper Creek Dome, is setting the 10-inch at 2,014 feet on top of a sand showing some oil.

In Carbon County, the Lake Valley Oil Co.'s No. 1, SE Section 14-20-88, on the Eight Mile Lake structure, which has been shut down at 4,915 feet since 1927, is reported preparing to resume. S. T. Comer, of Portland, Ore., was in Rawlins recently making the arrangements. The Producers & Refiners' No. 7, Section 7-26-89, on the Wertz Dome, which started drilling deeper from 2,339 feet last summer, and has been shut down for a few months, again is active. The total depth is 3,510 feet and the rig is being rebuilt. At 3,471-97 feet it had considerable gas last November and this was killed, but it has made practically no new hole since on account of fishing jobs and other troubles. The same company's No. 1, NE NE Section 14-25-89, Sherrard Dome, is bottomed at 3,037 feet in dark sand and cleaning out and working pipe. The 8¼-inch is at 2,993 feet. It had considerable gas in the Frontier at 2,691 feet and lower horizons. At 3,027 feet it had more gas which became ignited and burned the rig. This has been rebuilt and the gas mudded off.

In Lincoln County, Reeves Aylmore's No. 1 Higgins, NE NW Section 7-21-119, on the Sage Creek Dome, is resuming at 400 feet after being shut down for the winter. This is sometimes known as the Topley well. At 286 feet in the ear River (lower Dakota) it cut a 1-foot sand which made about 3½ bbls. per day. The Midwest Refining Co.'s No. 1 Waterfall, SE SW Section 35-22-115, is bottomed at 2,746 feet and drilling up underreamer lug.

In Sweetwater County, the Prairie Oil & Gas Co.'s No. 74-A, Section 11-26-90,

Lost Soldier, is bottomed at 1,407 feet and recemented the 12½-inch at 1,372 feet; its No. 47-A, same section, has commenced drilling deeper from 2,155 feet. The Producers & Refiners' No. 1, NE SE Section 26-20-104, North Baxter Basin, joint with the Marland Production Co., which was shut down at 3,500 feet for the winter, is resuming. It is circulating to kill the gas, estimated at 10,000,000 feet, which was supposedly coming from the Lakota. The Sundance is the objective.

The California Co.'s No. 1 Union Pacific, NE NW Section 7-17-116, Muddy Creek Dome, in Lincoln County, is running casing at a total depth of 3,036 feet. This company's two operations in Sublet County are both shut down.

IDAHO

The California Co.'s No. 1 Sorensen, NW SW Section 33-3n-41, on the Meadow Creek structure in Bonneville County, Idaho, is drilling in gray lime at 2,467 feet. The Grand Teton Oil Co.'s No. 1 Blevins, SW Section 33-5n-44, Horseshoe structure, Teton County, is drilling in the Frontier at a depth not reported. The Goose Creek Oil Co.'s No. 1, NW Section 30-15s-22e, on Coal Creek south of Oakley in Cassia County, which has been idle for some time at 1,400 feet, is reported preparing to resume. D. P. Carpenter of Pennsylvania has been in that territory trying to retrieve equipment that disappeared from the well after it was shut down. It was left with a full line of equipment. During Mr. Carpenter's absence divers oil enthusiasts in neighboring counties are said to have borrowed or otherwise appropriated most of the loose equipment, leaving the hole only, which has been relocated. In company with Sheriff P. D. Pace, Carpenter called on several drillers in Idaho and is said to have identified and recovered some of the machinery and other parts were found in Wyoming.

MONTANA

No. 1 Bailey of the Archer Montana Syndicate, drilling in the Banatyne Field, Section 6-25-1, should reach the pay within a few days. The Hardrock Oil Co. is moving in a rig and tools to start a well on the adjoining Section 5-25-1, on the Skoog ranch. The Fifty Six Petroleum Co. is also drilling again in Section 5-21-1, and the hole is at about 1,000 feet and making good time. This company will soon move a second string into the Banatyne Field according to recent announcements and locations have been made to insure work for both strings of tools during the coming season.

Pondera Field came into the limelight the past week with an extension of territory proven by the Warren Oil Co.'s well on Section 17-27-4. This well is north and east of the Elliott Jones well in the center of this section and the Warren well proves Pondera's productive area extends across Section 16 from the main part of the field on Section 15. The new well found the sand at 2,040 feet and is expected to make a 50-bbl. well at that depth.

Three wells should be in the pay next week in the Pondera Field. The Midwest, Ohio Oil and the Fulton Oil companies each has a well below 1,900 feet and should be in the sand in a few days without mishaps.

A wildcat drilling on the Signal Hill Dome near Lewistown in the central part of the State, passed through a vein of coal at 650 feet that has interested several coal operators of that city and further drilling with test holes for this vein is expected in that vicinity.

Work is progressing on the Dry Creek gas line that the Ohio Oil Co. is laying from the Dry Creek gas field to a connection with the Wyoming to Billings gas line. This line will create a reserve gas supply for the city of Billings and other towns and cities along the route so that the shut down last winter, resulting from a break in the main trunk line, will not happen again.

In the Sunburst Field, the work has become quite active in the past few days due to excellent weather conditions. No completions were reported, but the southeast part of the field is to have a play and appears to be about to bring in an extension in that direction.

ROCKY MOUNTAIN PRODUCTION
Daily Average Runs Week Ended April 27

WYOMING	
Salt Creek	27,160
Big Muddy	2,380
Grass Creek	2,270
Elk Basin	810
Ferris	20
Rock Creek	2,470
Lance Creek	270
La Barge	1,820
Poison Spider	700
Oregon Basin	2,350
Osage	730
Lander	700
Byron	30
Lost Soldier	3,310
Simpson Ridge	50
Dutton Creek	10
Rex Lake	140
Hamilton Dome	1,000
Frannie	30
Teapot Dome	60
Total Wyoming	46,310
MONTANA	
Cat Creek	1,420
Kevin-Sunburst	6,490
Pondera	3,010
Lake Basin	80
Total Montana	11,000
COLORADO	
Florence	1,047
Moffat	963
Fort Collins	2,455
Iles Dome	1,083
Rangely	100
Tow Creek	588
Boulder	25
Total Colorado	6,261
NEW MEXICO	
Rattlesnake	827
Hogback	260
Artesia	898
Cap Rock	410
Table Mesa	...
Total New Mexico	2,395
Total Rocky Mountain	65,966

SAFETY MEETING FOR SEMINOLE OIL FIELDS

To discuss safety problems relating to oil production, at least 300 executives of the Seminole oil fields will meet on May 6 at Shawnee, Okla., for a Petroleum Safety Banquet, at the Phillips Hotel.

The meeting is sponsored jointly by the Mid-Continent Oil and Gas Association, and the Safety Section of the Mid-Continent division of the Petroleum section of the National Safety Council.

It is a follow-up of a similar meeting held at Midland, Tex., on February 15, as sponsored by the Gulf States division of the Petroleum section of the National Safety Council. The Midland meeting discussed chiefly the safety problems relating to hydrogen sulphide gas, which hazard is prevalent in the Midland locality. The Midland meeting had an attendance of 200.

The Shawnee meeting will consider especially the hazards relating to gas air lifts and to natural gas gasoline plant operation. The attendance will include executives dealing directly with producing field operations.

For the evening program, J. Burr Gibbons, vice president, Oil Well Improvement Co., Tulsa, will be toastmaster. The program follows:

"Accident Prevention in the Producing Fields," H. N. Blakeslee, petroleum representative, National Safety Council, Chicago.

"Theory and Application of Safety," Elmo D. Murphey, chairman, Mid-Continent division, National Safety Council, Tulsa.

"Safe Operation of Air and Gas Lifts," F. W. Robson, division production engineer, Carter Oil Co., Seminole.

"Responsibility in Foremanship," D. J. Wallace, safety director, Mid-Continent Oil and Gas Association.

PRAIRIE CRUDE STOCKS

The recent purchase of the T. B. Slick producing properties by the Prairie Oil & Gas Co. included the crude stocks owned by the Slick corporation and these added to the crude stocks already owned by the Prairie Oil & Gas Co. increased the latter company's gross stocks at the end of March to 54,832,787.38 bbls. in Kansas, Oklahoma and Texas. The net stocks were 51,016,888.25 bbls.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 40)

Gulf Prod. Co.'s No. 63 McElroy, 2,762 ft. S and 2,310 ft. E of NW Sec. 206, Blk. F, C.C.S.D.&R.G.N.G.R.R. Survey ..... Location.

CROCKETT COUNTY

Eppenaur et al's No. 2 Noelke, 500 ft. N and 1,250 ft. E of SE cor. Sec. 64, Blk. 1, I.&G.N.R.R. Sur. ..... Shut down 565 ft.

Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur... Shut down 1,002 ft.

W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.A. Sur. ..... Total depth 1,110 ft.

W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,663 ft.; shut down 1,755 ft.

W. A. Moncrief et al's No. 1 Massie, 1,170 ft. N and 1,320 ft. E of SW cor. Sec. 47, Blk. UV, G.C.&S.F. Sur. ..... Underreaming 660 ft.

J. D. Wheeler's No. 1 State Land, 744 ft. S and 1,250 ft. E from SE cor. Sec. 73, Blk. 1, I.&G.N.R.R. Sur., but in Vacancy Strip ..... Top salt 492 ft.; set 8-in. casing 595 ft.; total depth 1,719 ft.

CULBERSON COUNTY

Deep Rock Oil Co. et al's No. 1 Kloh-Rumsey, 800 ft. S and 1,422 ft. E of NW cor. Sec. 33, Blk. 59, Twp. 7, T.&P.R.R. Sur. ..... Fishing 1,460 ft.

Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W Sec. 20, Blk. 82 ..... Small oil show 1,331 ft.; pipe set 1,418 ft.; drlg. 1,890 ft.

W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 .. Shut down 720 ft. for water.

Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; shut down 1,800 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. ... Shut down 2,000 ft. for orders.

Cranfill & Reynolds' No. 2 Willingham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur. .. Drlg. 3,344 ft.

Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R. ..... Oil show 2,905 ft.; set 6-in. 3,160 ft.; shut down 3,218 ft.

Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbett Sur. No. 331 ..... Drlg. 3,155 ft.

Gillman-McMurray & French's No. 1 Cleveland, 781 ft. N and 1,336 ft. W of SE cor. Sec. 116, Blk. 2, H.&T.C. Sur. ..... Drlg. 3,060 ft.

Landreth Prod. Corp.'s No. 1 Cooper, 440 ft. SE of NE cor. NW Sec. 115, Blk. 1, H.&T.C. Sur. ..... Show oil 2,760-70 ft.; underreaming 3,407 ft.

Mesa Oil Co.'s No. 1 Griffin, 849 ft. N and 465 ft. E of NE cor. Sec. 20, School Land ..... Set 6-in. casing 2,790 ft.

Roeser & Pendleton's No. 1 Haugh, 440 ft. S and 1,320 ft. E of NW cor. of SW of Sec. 191, B.B.B.&C.R.R. Sur. ..... Fishing 1,965 ft.

Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 ..... Drlg. 2,650 ft.

White Eagle Oil & Ref. Co.'s No. 1 Hughes, 4,942 ft. S and 560 ft. W of NE cor. Cosby Sur. 220 ..... Drlg. 2,100 ft.; hole full water 2,090-2,100 ft.

GAINES COUNTY

Pure Oil Co.'s No. 1 A. A. Williamson, 1,650 ft. S and 330 ft. W of NE cor. Sec. 110, Blk. H. D.&W.R.R. ... Top salt 2,339 ft.; fishing 4,124 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 1 J. S. Reed, 990 ft. W and 330 ft. N of SE cor. Sec. 135, Blk. 5, H.&C.N.R.R. Sur. ..... Moving in material.

GLASSCOCK COUNTY

Chas. Daniel et al's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. .. Shut down 500 ft.

Gibson-Johnson's No. 1 Dean, 1,320 ft. S and E of NW cor. Sec. 2, Blk. 33, Twp. 2s, T.P.R.R. Sur. ..... Location.

R. R. Penn's No. 1 Hughes-Johnson, C NW Sec. 45, Blk. 30, W.&N.W. Sur. ..... Drlg 3,730 ft.

Meriweather Oil Co.'s No. 2 McDowell, 1,492 ft. N and 150 ft. E of SE Sec. 35, Blk. 34, Twp. 2s, T.&P. Sur. Hole full water 2,665 ft.; set 6-in. casing 2,700 ft.; drlg. 3,730 ft.

World Oil Co.'s No. 1-C McDowell, 1,650 ft. S and 2,310 ft. W of NE cor. Sec. 21, Blk. 34 ..... Total depth 2,351 ft.; show free oil 2,335-51 ft.; bailing.

HOWARD COUNTY

Amerada Pet. Corp.'s No. 9 Roberts, 1,115 ft. N and 622 ft. W of SE cor. Sec. 128, Blk. 29, W.&N.W. Sur. ..... Location.

American Maracaibo Co.'s No. 1 Settles-D, 330 ft. S and 1,650 ft. E of NW cor. Sec. 158, Blk. 29, W.&N.W. R.R. Sur. ..... Cleaning out 2,931 ft.

American Maracaibo Co.'s No. 5 Settles-C, 330 ft. S and W of NE cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. ..... 300 qts. 2,212-27 ft.; total depth 2,285 ft.; swabbing and cleaning out.

California Co.'s No. 5 Roberts, Lease 2, 1,170 ft. S and 150 ft. W of NE cor. Sec. 156, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,883 ft.

California Co.'s No. 1 Settles, 2,310 ft. N and W of SE Sec. 158, Blk. 28, W.&N.W. Sur. ..... Shut down 3,417 ft.

Cosden & Co.'s No. 4 Dora Roberts-C, 200 ft. W and 1,520 ft. N of SE cor. Sec. 128, Blk. 29, W.&N.W. Sur. ..... Shut down 1,280 ft.

Empire Gas & Fuel Co.'s No. 3 Clay, 1,315 ft. N and 1,570 ft. W of SE cor. Sec. 127, Blk. 29, W.&N.W. R.R. Sur. ..... Drlg. 1,750 ft.

F. H. E. Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Fishing 2,510 ft.

F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 ..... Set 6-in. casing 2,930 ft.; shut down.

Fuhrman Pet. Co.'s No. 1 Read, 2,310 ft. N and 330 ft. E of SW cor. Sec. 41, Blk. 32, Twp. 1n, T.&P.R.R. Sur.. Location.

Gibson & Johnson's No. 1 Read, 660 ft. N and W of SE cor. Sec. 47, Blk. 30, Twp. 1n, T.&P.R.R. Sur. ..... Underreaming 945 ft.

Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. ..... Drlg. 2,990 ft., anhydrite.

L. C. Harrison et al's No. 1 G. M. Podge Est., SE cor. Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur ..... Top lime 1,825 ft.; show oil 2,972-74 ft.; hole full fluid 3,257 ft.; total depth 3,257 ft.; cleaning out 2,936 ft.; putting on pump for test.

Hyer & Yates' No. 4 Clay, 990 ft. S and 1,650 ft. W of NE cor. Sec. 155, Blk. 29 ..... Set 6-in. casing 1,557 ft.; cleaning out 1,851 ft.

Magnolia Pet. Co.'s No. 2 Hyman, 1,320 ft. W and 1,220 ft. N of SE cor. Sec. 88, Blk. 29, W.&N.W. Sur. ..... Rig.

Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ..... Rigging up standard tools 2,927 ft. shut down.

Marland Prod. Co.'s No. 3 Clay-F, 250 ft. S and 660 ft. W of NE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. ... Shut down 2,675 ft. with show oil 2,595-2,675 ft.

Marland Prod. Co.'s No. 1 Clay-I, 210 ft. E and 1,520 ft. N of SW cor. Sec. 127, Blk. 29, W.&N.W.R.R. Sur. ..... Rig.

Marland Oil Co.'s No. 1 Clay-H, 330 ft. S and 990 ft. W of NE cor. Sec. 155, Blk. 29 ..... Location.

Marland Oil Co.'s No. 2 Clay-H, 990 ft. S and W of NE cor. Sec. 155, Blk. 29 ..... Location.

Marland Prod. Co.'s No. 6 Clay, 330 ft. N and E of SW cor. Sec. 139, Blk. 29, W.&N.W.R.R. Sur. ..... Total depth 1,812 ft.; oil show 1,793-1,810 ft.; shot 20 qts. 1,793-1,810 ft.; 200 ft. oil in hole; shot 40 quarts 1,796-1,810 ft.; 1,000 ft. oil in hole; cleaning out.

Midwest Exploration Co.'s No. 4 Clay-C, 330 ft. N and W of SE cor. Sec. 138, Blk. 29, W.&N.W.R.R. Sur. .. Drlg. 1,755 ft.

Moody Oil Corp.'s No. 13 D. Roberts, 2,310 ft. S and 2,260 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur... Drlg. 1,715 ft.

Plymouth Oil Co.'s No. 2 Kloh et al, 990 ft. S and 1,650 ft. W of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P. R.R. Sur. ..... Drlg. 1,960 ft.

Plymouth Oil Co.'s No. 3 Kloh et al, 1,650 ft. S and 990 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Drlg. 1,440 ft.

Schermerhorn Oil Co.'s No. 6 D. Roberts-A, 1,650 ft. S and 330 ft. W of NE cor. Sec. 137, Blk. 29, W.& N.W.R.R. Sur. ..... Rig.

Superior Oil Co.'s No. 14 Dora Roberts-B, 2,310 ft. E and 280 ft. S of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ..... Shut down 200 ft.

Superior Oil Co.'s No. 15 Dora Roberts-B, 2,310 ft. S and 380 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ..... Underreaming 2,565 ft.

Ward Oil Co.'s No. 7 Roberts, 2,310 ft. N and 380 ft. E of SW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur. ..... Drlg. 1,987 ft. (corrected).

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21 ..... Total depth 260 ft.; shut down; tools moved off.

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E ..... Set 16-in. casing 591 ft.; drlg. 976 ft.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ..... Straightreaming 2,700 ft.; total depth 2,865 ft.; fishing job.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 ..... Hole full water 2,945 ft.; underreaming 8¼-in. casing at 2,840 ft.; shut down 3,140 ft.; trying to pull casing.

IRION COUNTY

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. ..... Location.

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 2, C SW Sec. 3,009, Blk. 24, H.&T.C. Sur. ..... Top salt 920 ft.; drlg. 1,876 ft.

Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur.. Shut down 1,025 ft.

Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land .. Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,400 ft.

Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. ..... Top pay 3,368 ft.; swabbed 35 bbls. oil and 40 bbls. water; 35.8 gravity oil; show oil 5,480-83 ft.; show oil 5,660-70 ft.; drlg. 6,255 ft.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 600 ft. W line Sec. 345, H.&T.C. Sur. ..... Show gas 3,271 ft.; fresh water 3,000-05 ft.; underreaming 5 3/16-in. casing; drlg. 4,005 ft.; 600 ft. fresh water 4,000-25 ft.

JONES COUNTY

Condor Pet. Co.'s No. 1 McDonald, 340 ft. S and 240 ft. W of NE cor. Lot 59, G. A. Kirkland Sur. A-550 .... Underreaming 8-in. casing 1,905 ft.

J. E. Brewer's No. 1 Goodman, 150 ft. N and E of SW cor. Sec. 15, Blk. 19, T.&P.R.R. Sur. ..... Location.

Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 310 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur. ..... Rigged up and shut down.

Cosden-Herbert et al's No. 3 Bickley, 330 ft. N and W of SE cor. of S half NW Sec. 50, Blk. 18 ..... Rig.

W. G. Clark et al's No. 1 Collins, 330 ft. S and E of NW cor. Sec. 29, Blk. 18, T.&P.R.R. Sur. ..... Location.

W. G. Clark et al's No. 1 Dickenson, W 80 ac. of N 160 ac. of S 320 ac. out of H. B. Williams Sur. No. 273 ..... Drlg. 600 ft.

P. K. French's No. 1 Lieson, 150 ft. N and E of SW cor. of E half NW Sec. 31, Blk. 14, T.&P.R.R. Sur. ..... Shut down 215 ft.

Grisham & Hunter Corp.'s No. 1 Hester, 330 ft. N and E of SW cor. of E half, Lot 12, Kratz Sur. A-247 ... Drlg. 2,750 ft.

Humble Oil & Ref. Co.'s No. 1 Bickley, 330 ft. N and 200 ft. E of SW cor. of N half of S half of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. ..... Drlg. 1,810 ft.

Humble Oil & Ref. Co.'s No. 2 Bickley, 330 ft. S and W of NE cor. of SW Sec. 50, Blk. 18, T.&P.R.R. Sur. ..... Rig.

McGinley Corp.'s No. 1 Whittemore, 660 ft. N and W of SE cor. SE NE Sec. 39, B.B.B.&C. ..... Shut down 1,720 ft.

McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land ..... Spudded and shut down.

Phillips Pet. Co.'s No. 3 Pomeroy, SW cor. of S 106 ac. SW Sec. 16, Blk. 19, T.&P.R.R. Sur. ..... Drlg. 410 ft.

Phillips Pet. Co.'s No. 1 Walters, 990 ft. S and 330 ft. W of NE cor. N 80 ac. of W 160 ac. of NW Sec. 16, Blk. 19, T.&P. Sur. ..... Drlg. 1,800 ft.

Sedgwick O. & G. Co.'s No. 1 Routh, 1,250 ft. N, 2,500 ft. W SE cor. 299-acre tract, Austin & Williams Sur. 355-A-7 ..... Drlg. 3,175 ft.

Sedgwick Oil & Gas Co.'s No. 1 Brown, 660 ft. N and 1,320 ft. E of SW cor. Sec. 9, Blk. 1, T.&N.O. Sur. ... Location.

The Texas Company's No. 2 Camp, 2,829 ft. N and 323 ft. W of SE cor. Camp 189.5-acre lease, Sec. 13, T.&P. Sur., Blk. 19 ..... Underreaming 8-in. casing 2,260 ft.; hole full water 2,030 ft.

The Texas Company's No. 3 Camp, 1,189 ft. S and 326 ft. W of NE cor. of Sec. 13, Blk. 19, T.&P. ..... Drlg. 1,625 ft.

The Texas Company's No. 6 Carter, 200 ft. S and W of NE cor. of L. Carter 173.5-ac. tract out of Sec. 13, Blk. 19, T.&P. ..... Swabbed 150 bbls. oil and 1 bbl. water from 2,740-43 ft.

U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of 502 ac. of Penney Sur. A-283 ..... Drlg. 300 ft.

E. M. Treat Oil & Gas Co.'s No. 1 Hodge, 750 ft. S and 2,714 ft. W of NE cor. of S half A. Bell Sur. ..... Drlg. 750 ft.

W. D. Wells et al's No. 1 Britton, 150 ft. N and 890 ft. E SW cor. 640-ac. tract, H.&W. Sur. 354-355 ..... Drlg. 860 ft.

White Eagle Oil & Ref. Co.'s No. 1 W. B. Teague, 933 ft. N and W of SE cor. Sec. 30, Austin & Williams Sur. No. 339 ..... Rig.

KIMBLE COUNTY

McLean & Jamison's No. 1 Cannon, 1,940 ft. N and 300 ft. W of SE cor. Robert Cochran Sur. ..... Shut down 140 ft.

LOVING COUNTY

Lockhart & Co.'s No. 1 Hazell, 2,792 ft. SW of NE line and 660 ft. NW of SE line Sec. 84, Blk. 33, H.&T.C. R.R. Sur. ..... Rigging up standard tools and shut down.

Lockhart & Co.'s No. 2 Hayzell, 330 ft. from NE and SE line of Sec. 84, Blk. 33, H.&T.C.R.R. Sur. ..... Rigging up standard tools; top Delaware 4,138 ft.

Lockhart & Co.'s No. 1 Hubbard, 2,640 ft. NE and 660 ft. NW Sec. 84, Blk. 33, H.&T.C.R.R. Sur. ..... Top salt 700 ft.; cem. 8¼-in. casing 2,640 ft.; top pay 4,138 ft.; total depth 4,205 ft.; 2,000 ft. oil in hole; will shoot.

Lockhart & Co.'s No. 2 Hubbard, 1,660 ft. from NE line and 330 ft. from SE line of Sec. 83, Blk. 33, H.&T.C.R.R. ..... Top salt 718 ft.; drlg. 2,908 ft.

Lockhart & Co.'s No. 1 Johnson, 660 ft. S and 1,980 ft. W of NE cor. Sec. 20, Blk. 56, Twp. 1, T.&P.R.R. Sur. ..... Drlg. 230 ft.

Lockhart & Co.'s No. 1 Wheat-H, 990 ft. from NE and SE lines Sec. 85, Blk. 33, H.&T.C.R.R. Sur. ..... Top salt 720 ft.; set 8¼-in. casing 2,295 ft.; drlg. 2,830 ft.

MENARD COUNTY

Cromwell & Duffey's No. 1 Winslow, C SE Sec. 32, T.&N.O. Sur. ..... Location.

MIDLAND COUNTY

Phillips Pet. Corp.'s No. 1 Stokes, 440 ft. S and W of NE cor. S. Beall Sur. No. 101, Blk. 37, Twp. 2s, T.P.R.R. Sur. ..... Drlg. 990 ft.; carrying 12½-in. casing; hole full water 980 ft.

MITCHELL COUNTY

The California Co.'s No. 2 Clark Lease No. 2, 2,190 ft. N and E of SW cor. Sec. 14, Blk. 28, Twp. 1n, T.P.R.R. Sur. ..... Drlg. 960 ft.

Ellis and Atlantic O. P. Co.'s No. 1 Elwood, 660 ft. N and E of SW Sec. 30, Blk. 18, S.P.R.R. Sur. ..... Set 8-in. casing 618 ft.; 1,000,000 ft. gas 633-48 ft.

McGinley & Seiger's No. 1 Scott, C of NE of SW Sec. 36, Blk. 17, S.P.R.R. Sur. ..... Shut down 730 ft.

Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur. ..... Underreaming 10-in. casing 1,073 ft.; drlg. 2,915 ft.

Simms Pet. Co.'s No. 1 Elwood-A, 660 ft. S and E NW cor. Sec. 33, Blk. 18, S.P.R.R. Sur. ..... Location.

Spence et al's No. 1 Brown, 2,040 ft. E and 1,320 ft. S NW cor. Sec. 37, Blk. 25, T.&P. ..... Location.

Texs & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. ..... Straightening crooked hole 3,965 ft.

Westyde Investment Co.'s No. 1 Elwood, C SW Sec. 38, Blk. 16, S.P.R.R. Sur. ..... Location.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur. ..... Rig.

Phillips Pet. Co.'s No. 1 Plunkett, 330 ft. N and W of SE cor. NW Sec. 66, Blk. 23, T.&?. Sur. ..... Location.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry Sur. ..... Top salt 814 ft.; top lime 1,602 ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; sulphur water 1,652 ft.; shut down 1,655 ft.

Atlantic O. P. Co.'s No. 1 Trees, 330 ft. from N and 990 ft. from W line Sec. 108, Blk. 8, H.&G.N.R.R. Sur. ..... Drlg. 65 ft.

M. H. Black's No. 1 P.V.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 10, H.&G.N. Sur... Drlg. 1,400 ft.; top salt 1,090 ft.

H. R. Bell et al's No. 1 Gray, 150 ft. from S and 2,490 ft. from W line Sec. 593, G.C.&S.F.R.R. Sur. ..... Straightreaming 1,000 ft.

Buell & Hagan's No. 1 University-B, 330 ft. N and 2,310 ft. W of SE cor. Sec. 36, Blk. 18, University Land ..... Spudding 80 ft.

Cowboy Evans' No. 1 Pecos Valley, 2,310 ft. from NW line, 990 ft. from SW line of Sec. 36, Blk. 3, H.&T.C. R.R. Sur. ..... Location.

Cromwell & Kimberlin's No. 1 Jackson, 2,490 ft. from NW line, 1,170 ft. from NE line Sec. 28, Blk. 3, H.&T.C.R.R. ..... Location.

Crowley's No. 1 Heiner, 2,400 ft. each way from N and E lines Sec. 589, G.C.&S.F.R.R. Sur. ..... Shut down 1,000 ft.

California Co.'s No. 2 Smith, Lease 5, Sec. 16, 1,550 ft. from W and 200 ft. from N line Blk. 194, G.C.&S.F. R.R. Sur. ..... Total depth 1,597 ft.; bailed 15 bbls. oil in 24 hours; 43,000 ft. gas.

Clayton Williams' No. 1 Sanford, 160 ft. from NW line 1,150 ft. from SW line Sec. 55, Blk. 10, H.&G.N. ... Location.

Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,387 ..... Shut down 740 ft.

Geyer & Frates' No. 1 Smith, 1,320 ft. each way from N and E lines Sec. 8, Blk. 145, T.&St.L.R.R. Sur. .... Shut down 1,605 ft.

Imperial Oil & Gas Co.'s No. 1 Pecos Valley Oil Co., 990 ft. from SE line and 1,650 ft. from SW line Sec. 22, Blk. 10, H.&G.N.R.R. Sur. ..... Location.

Sam Kitts and others' No. 1 Sherbino, 330 ft. from N and 990 ft. from W line Sec. 52, Blk. C-4, G.C.&S.F. R.R. ..... Spudding.

Matador Oil Co.'s No. 3 Smith, 2,310 ft. from N and 990 ft. from E lines, Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ..... Moving in machine.

Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. ..... Shut down 1,405 ft.

McMan Oil & Gas Co.'s No. 5 Smith-C, 2,600 ft. S and 1,740 ft. from W line of Sec. 25, Blk. 194, G.C.&S.F... Drlg. 1,677 ft.; flowing 100 bbls. hourly.

Mid-Kansas Oil & Gas Co.'s No. 26 Yates, 1,312 ft. N from most southerly N line, 1,388 ft. E from most westerly E line Sec. 32, Blk. 194, G.C.&S.F.R.R. Sur... Drlg. 1,105 ft.

Mid-Kansas & Transcontinental's No. 27 Yates-A, 1,296 ft. E and 250 ft. S of NE cor. Sec. 31, Blk. 194, G.C.&S.F. Sur. ..... Shut down 1,575 ft.; hole full sulphur water 1,575 ft.

Moncrief et al's No. 1 Tippett, 1,980 ft. from S and 660 ft. from W lines of Sec. 46, Blk. 194, G.C.&S.F. Sur... Rigging up.

R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. ..... Machine.

Perrin et al's No. 1 Eaton, 150 ft. each way from NE and NW lines Sec. 27, Blk. 3, H.&T.C. Sur. ..... 18,000,000 ft. gas 1,490-1,502 ft.; spraying salt water from behind 8¼-in. casing set at 1,180 ft.; trying to run 5 3/16-in. casing.

Phillips Pet. Co.'s No. 1 Courtney, 440 ft. S and E of NW cor. Sec. 78, Blk. OW, T.M.R.R. Sur. ..... Total depth 550 ft.; crooked hole.

Phillips Pet. Co.'s No. 2 Ramsey, 990 ft. S and 1,980 ft. W of NE cor. Sec. 17, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 290 ft.

B. J. Spikes' No. 1 George Brown ..... Drlg. 985 ft.; top salt 740 ft.

Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&S.F. ..... Shut down 1,004 ft., repairs.

Talbot and others' No. 1 Unsicker, 150 ft. each way from NE and SE cor. line of Sec. 25, Blk. 10, H.&G.N. Sur. ..... Location.

Tidal Oil Co.'s No. 1 University, 1,320 ft. from S and W lines of Sec. 16, Blk. 20, University Land ..... Rigging up.

Transcontinental Oil Co.'s No. 1 Sellman, 990 ft. N and W of SE cor. Sec. 7, Blk. 194, G.C.&S.F.R.R. Sur. .... Drlg. 735 ft.

Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18 ..... Top lime 1,155 ft.; fishing 4,307 ft.

Transcontinental Oil Co.'s No. 2 University, C of SW SW Sec. 9, Blk. 17, University Land ..... Location.

Weekley Oil Corp.'s No. 1 Byrne, 990 ft. each way from NW and SW lines of Sec. 24, Blk. 10, H.&G.N.R.R. Sur. ..... Shut down 697 ft.

World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft. — Shut down 3,105 ft.

PRESIDIO COUNTY

Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootie Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur. — Set 8-in.; total depth 2,470 ft.; cleaning out.

L. C. Brite's No. 3 Brite, 2,500 ft. N and 2,300 ft. W of SE cor. Sec. 51, Blk. 12, G.H.&S.A. — Drlg. 600 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor. Sec. 1, Blk. 2, University Land — Drlg. 2,420 ft.

Kemrow Co.'s No. 1 Sawyer Cattle Co., 1,320 ft. from N and 1,980 ft. from E line Sec. 8, J. G. Robinson Sur. — Location.

Skelly Oil Co.'s No. 4 University, 2,310 ft. N and 990 ft. W of SE cor. Sec. 33, Blk. 8 — Shut down 742 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. — Total depth 2,900 ft.; shut down.

Southern Crude O. P. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor. Sec. 23, Blk. 51 — Hole full water 1,140 ft.; drlg. 1,240 ft.

David R. Thompson's No. 1 A. A. Eddins — Fishing casing 5,658 ft.; underreaming 8¼-in. casing.

Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&P.R.R. Sur. — Top salt 1,725 ft.; hole full fluid 5,176 ft.; drlg. 5,249 ft.; hole full salt water 5,177 ft.

Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. — Drlg. 690 ft.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262 — Shut down 1,350 ft.

Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE line Gray Carroll Sur. — Drlg. 620 ft.

Independent Oil & Gas Co.'s No. 1 Will Rollwitz, 330 ft. S and W of NE cor. S half M. Salinas Sur. No. 20½ — Drlg. 1,780 ft.

Marland Prod. Co.'s No. 1 August Herring, 330 ft. S and 1,650 ft. W of NE cor. Sec. 39, E.T.R.R. Co. Sur. — Drlg. 2,905 ft.

McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R. — Shut down 1,185 ft.

Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S, 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2 — Shut down 3,810 ft.

Pure Oil Co.'s No. 1 Russell, 367 ft. E and 12,231 ft. S of NW cor. Hughes Sur. No. 227 — Location.

Pure Oil Co.'s No. 2 Russell, 945 ft. E and 12,015 ft. S of NW cor. Sur. No. 227 — Location.

Union Oil Co. of Nevada's No. 1 W. E. Allen, 1,000 ft. N and W of SE cor. Sec. 1, H.E.&W.T. Sur. — Shut down 3,865 ft.

Vacuum Oil Co.'s No. 4 McMillan, 555 ft. S and 717 ft. W of NE cor. Lot 22, Domingo Diaz Sur. No. 532 — Location.

SCHLEICHER COUNTY

J. F. Long and O. C. Long's No. 1 W. H. Williams, NE cor. Sec. 28, H.E.&W.T.R.R. Sur. — Shut down 275 ft.

SCURRY COUNTY

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. — Spudded and shut down 300 ft.

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. — Shut down 2,710 ft.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur. — Show oil 1,296-98 ft. and 1,356-58 ft.; fishing 2,182 ft.; drlg. 2,340 ft.

George L. Miller's No. 1 Foster, 3,690 ft. S and 1,397 ft. W of NE cor. Sec. 4, Blk. 31, T.&P. Sur. — Set 12½-in. casing 830 ft.; set 8-in. casing 2,138 ft.; shut down 2,808 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, G.C.S.D.&N.G.R.R. Sur. — Drlg. 6,480 ft.

L. G. Priest's No. 1 Allison, 1,320 ft. N and E of SW cor. Sec. 52, Blk. A, T.&P. Sur. — Set 15-in. casing 530 ft.; drlg. 1,890 ft.

Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 320 ft. W of NE Sec. 41, Blk. K, G.H.&S.A. Sur. — Drlg. 4,445 ft.

TAYLOR COUNTY

V. B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor. Sec. 46, Lunatic Asylum Land — Shut down 2,160 ft., repairs.

Mid-Continent Oil & Gas Co.'s No. 1 Taylor, 990 ft. W 215 ft. N SE cor. 100-ac. tract, Sec. 18, Guadalupe School Land Sur. — 300 ft. oil 2,384-87 ft.; 2,445-50 ft.; swabbed 5 bbls.; shut down 3,006 ft.; ran bailer 25 ft. off bottom; no oil.

Root Drlg. Co.'s No. 1 Martin, 990 ft. E and 1,650 ft. N of SW cor. Sec. 30, Blk. 19, T.&P.R.R. Sur. — Drlg. 830 ft.

Wentz Oil Corp.'s No. 1 Armour, 275 ft. N and 330 ft. W of SE cor. W half Sec. 16, Blk. 6, S.P.R.R. Sur. — Shut down 2,250 ft.

TERRELL COUNTY

Big-Bend Oil Co.'s No. 1 Barrett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur. — Spudded and shut down.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.R.R. Sur. — Shut down 1,749 ft.

Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur. — Spudded and shut down.

Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur. — Cem. 6⅝-in. casing 3,986 ft.; fishing 4,635 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. — Shut down 150 ft.

TERRY COUNTY

Kingsland O. P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. — Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer. — Shut down 1,920 ft.

Williams et al's No. 1 Willeke, 2,500 ft. N and 75 ft. E of SW cor. Sec. 3, Deaf & Dumb Asiyum Land — Total depth 750 ft.; hole full sulphur water 750 ft.

UPTON COUNTY

Sun Oil Co.'s No. 1 Long, 2,310 ft. each way from S and W line of Sec. 3, Sur. A-356 — Top salt 580 ft.; drlg. 1,850 ft.

Humble O. & R. Co.'s No. 11 Ricker, 1,320 ft. from NE cor. and 5,390 ft. from NW line Sec. 5, Denton Sur. A-127 — Drlg. 985 ft.

Wentz Oil Co.'s No. 5 Shirk, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 35, Blk. 1, M.-K.-T.R.R. Sur. — Top salt 815 ft.; drlg. 1,950 ft.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. — Fishing 1,015 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. — Shut down 4,850 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. — Gas sand 2,491-2,520 ft.; tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.

Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. — Drlg. 2,375 ft.; 8¼-in. casing set 2,115 ft.

Dyar Bros. et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. — Total depth 2,820 ft.; pulling casing to straighten crooked hole.

Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y — Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; shut down 3,600 ft.; fishing tools.

WARD COUNTY

Gulf Prod. Co.'s No. 2 Hutchins, NE cor. Sec. 7, Blk. O, G.M.M.B.&A. Sur. — Location.

Gulf Prod. Co.'s No. 4 O'Brien et al, C NW SW Sec. 19, Blk. F, G.M.M.&M.A. Sur. — Set 15½-in. casing 475 ft.; set 10-in. casing 1,153 ft.; top salt 1,290 ft.; making 56 bbls. hourly through tubing.

Gulf Prod. Co.'s No. 5 O'Brien, 330 ft. each way NW of SW Sec. 18, Blk. F, G.M.M.B.&A. Sur. — Location.

J. H. L. Oil Co.'s No. 2 Hayzlett, 1,100 ft. from SW and 220 ft. from SE line Sec. 17, Blk. 5, H.&T.C. — Averaging 72½ bbls. daily 2,457-2,478 ft.; drlg. 2,487 ft.; averaging 50 bbls. daily; gas increased 2,474-78 ft.

E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R. — Fishing 960 ft.

WINKLER COUNTY

American Maracaibo Co.'s No. 2 Hendricks-B, 1,980 ft. N and 1,650 ft. E of SW cor. Sec. 28, Blk. B-5 — Cem. 12½-in. casing 170 ft.; top lime 2,599 ft.; set 8¼-in. casing 2,599 ft.

M. J. Bashara's No. 1 fee, 990 ft. N and 2,310 ft. E SW cor. Sec. 17, Blk. B-3 — Top lime 2,300 ft.; cem. 8¼-in. casing 2,477 ft.

Barnsdall Oil Corp.'s No. 2 Tobe Morton, 1,650 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 — Cem. 8¼-in. 2,758 ft.; top lime 2,751 ft.; cem. 8¼-in. casing 2,758 ft.; set 5-in. casing 2,996 ft.; plugging back to 2,935 ft.; total depth 3,124 ft.

Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 — Cellar.

Empire Gas & Fuel Co.'s No. 1-B Daugherty, 2,310 ft. S and 990 ft. W of NE cor. Sec. 3, Blk. 74 — Top lime 2,823 ft.; oil and gas show at 3,165 ft.; drlg. 3,378 ft.; flowing 15,000 bbls. daily; cem. 6⅝-in. casing 3,382 ft.; total depth 3,469 ft.; drlg. plug.

Humble O. & G. Co.'s No. 1 Hendricks-A, 2,310 ft. S and 330 ft. W of Sec. 48, Blk. 26 — Rigging up rotary.

Humble O. & R. Co.'s No. 11 Hendricks-C, Lease No. 2, 1,980 ft. S and 1,325 ft. E of NW cor. Sec. 10, Blk. B-12, Public School Land — Cem. 10-in. casing; cem. 6⅝-in. casing 2,484 ft.

Humble O. & R. Co.'s No. 12 Hendricks-C, 1,980 ft. N and 1,325 ft. E of SW cor. Sec. 10, Blk. B-12 — Location.

Humble O. & R. Co.'s No. 1 Walton-A, 2,310 ft. N and 330 ft. E SW cor. Sec. 48, Blk. 26 — Location.

Gulf Prod. Co.'s No. 1 Daugherty, 330 ft. S and W of NW and W of Sec. 22, Blk. 26 — Rigging up rotary.

Humble O. & R. Co.'s No. 12 Hendricks-C, 1,980 ft. S and 1,325 ft. W Sec. 10, Blk. B-12 — Rig.

Magnolia Pet. Co.'s No. 2 Scarborough, 1,620 ft. N and 990 ft. W SE cor. Sec. 1, Blk. C-22 — Location.

Prairie O. & G. Co.'s No. 2 Daugherty, 330 ft. S and 990 ft. E of NW cor. Sec. 16, Blk. 74 — Top lime 2,756 ft.; cem. 8¼-in. casing at 2,759 ft.; drlg. 3,145 ft.; top pay 2,977 ft.; 1,300 ft. oil in hole; flows by small heads.

Prairie O. & G. Co.'s No. 1 Scarborough, 990 ft. N and 1,650 ft. W of SE cor. Sec. 1, Blk. C-22 — Cem. 12½-in. casing 260 ft.; top salt 1,400 ft.; set 8¼-in. casing 2,845 ft.; fishing 3,081 ft.; flowing 150 bbls. daily.

Shell Pet. Co.'s No. 1 Leck, 990 ft. S and 1,650 ft. E of NW cor. Sec. 3, Blk. 74 — Top lime 2,789 ft.; drlg. 2,928 ft.

Skelly Oil Co.'s No. 2 Hendricks-C, 1,320 ft. N and 2,310 ft. W of SE cor. Sec. 10, Blk. B-12 — Top lime 2,636 ft.; cem. 8¼-in. 2,642 ft.; oil show 2,810-2,970 ft.; 25 bbls. daily, 90 per cent water; reaming 3,045 ft.; slight show oil 3,034 ft.; hole full sulphur water 3,034-39 ft.

Southern Crude O. P. Co.'s No. 6 Hendricks T-67-3-A, 990 ft. S and 1,650 ft. W of NE cor. Sec. 4, Blk. B-12 — Cem. 12½-in. casing 2,245 ft.; cem. 8¼-in. casing 2,664 ft.; top lime 2,612 ft.; drlg. 2,868 ft.; top pay 2,790 ft.; 850 ft. oil in hole.

Southern Crude O. P. Co.'s No. 5 Hendricks T-67-F, 330 ft. N and 990 ft. W of SE cor. Sec. 33, Blk. B-5, School Land — Top lime 2,711 ft.; cem. 8¼-in. casing 2,784 ft.; top lime 2,711 ft.; drlg. 2,945 ft.; top pay 2,745 ft.; flowing 75 bbls. per day, 30 per cent water.

Simms Pet. Co. et al's No. 2 Sealey, 2,434 ft. S and 990 ft. W of NE cor. Sec. 50, G.M.M.&A. Sur. — Rotary rig.

Southern Crude O. P. Co.'s No. 8 Hendricks T-88-C, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 28, Blk. B-5, School Land — Top lime 2,515 ft.; cem. 8¼-in. casing 2,535 ft.; drlg. 2,675 ft.

Southern Crude O. P. Co.'s No. 6 Hendricks T-88-K, 2,200 ft. S, 1,650 ft. W of NE cor. Sec. 41, Blk. 26 — Cem. 8¼-in. casing 2,662 ft.; rigging up standard tools.

Southern Crude O. P. Co.'s No. 7 Hendricks T-88-K, 1,320 ft. S and 1,650 ft. W of NE cor. Sec. 41, Blk. 26 — Drlg. 240 ft.

Southern Crude O. P. Co.'s No. 32 Hendricks T-88-M, 1,760 ft. S and 990 ft. W of NE cor. Sec. 33, Blk. 26, School Land — Drlg. 1,760 ft.

Southern Crude O. P. Co.'s No. 6 Hendricks T-88-N, 1,320 ft. N and W of SE cor. Sec. 28, Blk. 26, School Land — Drlg. 2,145 ft.

Southern Crude O. P. Co.'s No. 7 Hendricks T-88-N, 2,320 ft. N and 2,640 ft. W of SE cor. Sec. 28, Blk. 26 — Running 12½-in. casing 515 ft.; drlg. 2,320 ft.

Southern Crude O. P. Co.'s No. 3 Hendricks T-88-O, 440 ft. S, 330 ft. W of NE cor. Sec. 28, Blk. 26 — Top lime 2,376 ft.; drlg. 2,468 ft.

Southern Crude O. P. Co.'s No. 4 Hendricks T-88-O, 1,320 ft. S and W of NE cor. Sec. 28, Blk. 26 — Drlg. 575 ft.

Southern Crude O. P. Co.'s No. 7 Hendricks T-88-H, 2,310 ft. N and 990 ft. E of SW Sec. 28, Blk. B-5, School Land — Top lime 2,552 ft.; cem. 8¼-in. casing 2,580 ft.; top pay 2,705 ft.; drlg. 2,997 ft.; hole full sulphur water 2,912 ft.

Southern Crude O. P. Co.'s No. 3 Hendricks T-88-R, 1,320 ft. N and E of SW Sec. 27, Blk. 26 — Drlg. 650 ft.

Southern Crude O. P. Co.'s No. 6 Hendricks T-89-J, 2,200 ft. S and 330 ft. W of NE cor. Sec. 9, Blk. B-12 — Top lime 2,510 ft.; cem. 8¼-in. 2,525 ft.; rigging up standard tools; cem. 8¼-in. casing 2,531 ft.

Southern Crude O. P. Co.'s No. 7 Hendricks T-89-J, 1,540 ft. from N and 1,320 ft. from E lines Sec. 9, Blk. B-12 — Cem. 12½-in. casing 371 ft.; rigging up standard tools 2,582 ft.

Southern Crude O. P. Co.'s No. 8 Hendricks T-89-J, 440 ft. N and 330 ft. W of SE cor. Sec. 9, Blk. B-12 — Drlg. 1,360 ft.

Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur. — Drlg. 3,255 ft.

More Profit From Less Economic Waste

Chief Factor in Explaining Seeming Paradox of Very Low Product Prices and Fairly Satisfactory Profits

By John D. Gill*
Of the Atlantic Refining Co.

Perhaps the strongest argument for public and governmental approval of certain forms of co-operative effort in the oil industry is to be found in the benefits which accrued to the public and to the industry in 1928 as a result in part of such co-operative efforts. Satisfactory accomplishments by the industry which should gain the public's favor comprehend for the public an ample supply of petroleum products of acceptable grade and at prices which encourage consumption, and for the industry profits which return on investments therein a rate high enough to encourage further investment to provide for the public's increasing demands.

Last year both of these requirements of satisfactory performance were fulfilled in such a manner as to make 1928 memorable in the history of the oil business and indeed, in the economic life of the Nation. During 1928 the public was supplied with a volume of products nearly 150,000,000 bbls. greater than the supply of 1926; and for this augmented quantity paid the industry approximately $150,000,000 less than in 1926. The weighted average of refinery prices of all products last year was approximately 20 per cent below the weighted average of all products in 1926. Because all other product prices are related to and dependent upon refinery prices, it is altogether probable the average retail price of all products bought by the public was not far from 20 per cent below the 1926 level. Unit prices of the group of major petroleum products, and indeed the unit prices of each of the major products, with negligible exceptions, averaged during 1928 at a lower level than during any year since the war, excepting only 1927, which is not recognized as a year of satisfactory accomplishment in the industry because of the meager profits received by the industry.

Product Prices

Refinery product prices in 1928 were lower than those of 1926 by the following percentages: Gasoline, 22 per cent; kerosene, 28 per cent; fuel oils, 22 per cent; lubricating oils, 5 per cent, and waxes, 17 per cent. The retail prices of gasoline and kerosene, exclusive of taxes, are estimated to have been lower in 1928 than in 1926 by about 16 per cent for gasoline and about 12 per cent for kerosene. Indeed, the retail prices of kerosene and gasoline were lower in 1928 than they were even in 1927.

The foregoing facts may be considered sufficiently representative of the entire volumetric and price situation to indicate conclusively that so far as the public was concerned the accomplishments of the oil industry during 1928 were highly satisfactory. On the other hand, what of the oil industry's profits? To the best of the writer's knowledge the over-all profits of all units in all branches of the Moreover, profit and loss statements for many units in the industry are not made public. However, the published statements of a group of more or less completely integrated companies which represent a very substantial part of the entire industry indicate that for the year ended December 31, 1928, the profits or the group averaged approximately 11 per cent of the net worth of the group. For the same group the profit-net worth ratios were 11.65 per cent for 1926 and 12.18 per cent for 1925. The 1928 return of about 11 per cent approximates the general average for a somewhat different but comparable group over the past decade and a half, and might be considered sufficient to guarantee to the industry capital funds with which to provide for needed enlargements of facilities. It should be recognized that the best interests of the consuming public depend upon a fair return to the industry. Certainly it may be assumed that the quality-improving and price-reducing technologic changes made by the industry have been made possible by the industry's large expenditures for research and improved equipment—expenditures which have been inspired by the hope of an adequate financial reward.

Cause of Improvement

During 1928 some companies for which we have financial statements sustained heavy deficits. Undoubtedly many companies for which statements are not available experienced heavy losses. Profits for a number of those companies for which statements have been published were indeed meager and it may be assumed that profits were also very unsatisfactory for a large number of companies for which statements are not available. Such unsatisfactory results appear always to attend a proportion of any large group even in the most profitable years. It may not be unwarranted to base our conclusions regarding the profits of the industry upon the results of a group representing perhaps 30 per cent of the estimated investment of the industry. Therefore, despite the financial hardships encountered by many units in the industry and the low prices for petroleum products afforded the public, the accomplishments of the industry during 1928, so far as investors therein are concerned, may be considered tolerably satisfactory.

What brought about this much desired condition of the dual benefits of low prices and fairly satisfactory profits? The two-fold results of the industry's operations during 1928 were due in part to technical improvements in methods and equipment, in prospecting for oil, in drilling operations, in refining, transporting and marketing. A share in the improvement which has been made may be credited properly to good fortune in the discovery of rich oil deposits, but much of this alleged good fortune may just as properly be credited to the industry's improved technology. Moreover, the splendid improvements which have been made in the refining and transportation branches of the business can hardly be credited to good fortune, but are the results of intensive studies made at considerable expense and vast expenditures for improved equipment. Physical wastes have been reduced through improved technology. But it is to be recognized that the industry's technologic improvements have been continuing over a long period of years, of which 1928 is but one in the sequence. Such profit-making and price-reducing results of improved technology should have been experienced in 1927 and in prior years. While during 1927 the public was provided with products at low prices and during 1926 the industry obtained a satisfactory profit, the year 1928 differed from the former years in providing both lower prices and satisfactory profits. Since the benefits of technologic improvements probably were experienced to no greater extent in 1928 than in prior years, the dual benefits of the industry's accomplishments in 1928 must be found at least in part in other causes. Earlier years have witnessed fortunate discoveries of rich deposits of petroleum which have resulted temporarily in much lower prices to the public and almost without exception in disastrous financial conditions to the industry. It is hardly proper, therefore, to credit to fortunate discoveries the 1928 condition.

Reduction of Waste

The reduction of economic waste is perhaps the best explanation of the 1928 results. Physical wastes include such tangible losses as gas allowed to escape into the air, evaporation of the light ends of ill-stored crude oil, the loss of crude oil in flush pools for want of storage and transportation facilities, etc. Economic wastes are more subtle perhaps, more the result of our competitive system. Economic wastes include under the broad heading of duplication of effort, "town lot drilling"; and the installation of distributing equipment beyond the needs of the public; and those large ill-defined losses arising from the production of crude oil and products in quantities exceeding the demand. It seems improper to make less of a useful commodity than the people want, and just as improper to make in any given period more than they want. A shortage tends to impair the public welfare; an excess is produced presumably at a cost higher than the cost to produce a similar quantity would be in the future when such quantity is required. Moreover, there are wastes resulting from the production of excesses through the freezing of capital and the expense of storage. With certain commodities such economic wastes lead to physical wastes through the deterioration of quality and loss by evaporation. Fire hazards are increased.

Economic Wastes

The reduction of economic wastes during 1928 through the maintenance of a better balance between production and consumption of crude oil and products, by the better spacing of wells, by the more thoughtful consideration to the installation of additional distributing facilities, etc., appears to have been the result partly of the industry's newly organized effort in co-operation and partly the more judicious control of individual operations, predicated on the economic principles discussed intensively over the past several years in the industry's conventions, and literature. The results of last year's performance, so far as price reductions and the substantial character of profits are concerned, may be viewed as an outstanding accomplishment of the new economic endeavors. In the face of a potential flood of oil, crude production and importation exceeded crude consumption by 1.8 per cent only, whereas the excess for the year before was 7.4 per cent. The output by refineries of the group of major products, exceeded by only seven-tenths of 1 per cent consumption thereof, while the production of gasoline, the key product, was kept to within seven one-hundredths of 1 per cent of a balance with consumption.

Much is yet to be desired in co-operative effort for the elimination of waste, and for the creation thereby of benefits to the public and to investors in the industry. A substantially sound balance between supply and demand is desirable even in the absence of other reasons than these two: that lack of balance on the short side means impaired welfare of the public and on the long side means the economic losses incident to the produc-

*Before National Petroleum Association, Cambridge Springs, Pa.

PRICING INVENTORIES OF FINISHED PRODUCTS AND IN PROCESS STOCKS

By H. W. Ralph*

The particular problem of the majority of the members of the National Petroleum Association is how shall the inventories of finished products and "in process" stocks which are made from crude oil be priced each month and at the end of the fiscal year?

Those of you who are executive and accounting officers of experience; and have already faced an irate board of directors who want to know "how is it that a few months ago we showed a fine profit; and now, with the end of the year in sight, we have nothing to show for our efforts but a big loss," have an immediate answer; "it isn't so important that we know just how it is done, but be sure that it is low enough so that we do not turn a reported profit into a sickening loss in the next few months."

There is one very simple method to accomplish this result; use the lowest price you have had in the past 5 or 10 years for each of the products in pricing the inventory. By doing so you will never develop from your records reliable information as to the success of your activities for current periods, but you are unlikely to have to reverse previous favorable reports. Some years ago, particularly before the war, when the methods of the various refineries had not changed much since the time of erection of the plant, this method was reputed to have another advantage. It permitted direct comparison of the values of monthly production with preceding periods to be used as an indicator of efficiency. Such a comparison is meaningless if the refinery operations have been changed or when dissimilar value of products are used. At its best the method will not bear careful scrutiny. In my opinion this method serves only one purpose successfully; and that is to keep the statement of earnings on the safe side. In those days it will be demonstrably well below what we know is our cost.

Basic Idea

Let us consider another method which will give the same kind of protection, but in a less degree. This is the method which bears the stamp of government approval and may be considered to give cost. The basic idea is to calculate the cost of refined products on an apportionment according to the relative value of the net realization of products at the refinery siding. If the total value of current production is less than the sum of expenditures for raw materials, supplies, labor and indirect charges market prices are used. If in excess, the the percentage of margin between these two amounts is used to make a percentage reduction in the value of each product. By this method, too, you practically eliminate the bogey of unearned profit; and your profits will develop during the months in which you ship the products of largest value. The usefulness of this method of pricing is marked from the standpoint of a conservative accountant. Since it reflects in inventory prices the latest realization of products the likelihood of serious changes in relative values of products is very slight; and so the arbitrary adjustments sometimes necessary to adjust prices to the market are likely to be insignificant. Since it sets up a picture that rarely has to be disturbed subsequently it has claims to still another valuable characteristic. Its use results in the development for all organi-

(Continued on Page 71)

*Before National Petroleum Association, Cambridge Springs, Pa.

tion of crude and products at a cost probably higher than the cost should be at a time when the excess is needed.

Control Statistics

For the purpose of facilitating a balance between production and consumption the industry needs a system of control statistics, promptly available for short intervals. It is patent that the submission of such control statistics by each unit in the industry to a reliable agency in whom confidence can be reposed can in no way harm the reporting unit. Such a unit, however, may be benfited through the more consistent control of operations made possible by the summarized statistics of a group or area of which such unit may be a part and to which it has contributed data. Such cooperation within the industry costs the co-operating unit nothing beyond the expense of compiling data and submitting a report. Therefore, it constitutes splendid practice in co-operation and prepares each unit in the industry anent the time when it may be called upon to co-operate for the good of the industry as a whole in a way which temporarily does appear to hurt it.

It may be charged that certain forms of co-operation are objectionable because trade is restrained, but co-operation in restraint of production need not stifle competition. Each supplier may produce or manufacture the utmost volume which can be disposed of at a profit, following only the single principle that he should not produce or make that which he cannot sell. The volumetric guide to the conduct of his affairs lies in the principle that he should not accumulate stocks beyond seasonal requirements. No doubt the principle of the survival of the fittest continues and shall continue to control industrial situations. Our competitive system with all its faults is the one under which America has had its splendid industrial triumphs and is not to be abandoned until something of proved superiority is found. But the principle of the survival of the fittest under our competitive system is not inconsistent with co-operative efforts for the elimination of physical and economic waste. Co-operative efforts which are in the best interests of the group as a whole may not prevent the least fit from passing out of the industrial picture, but do permit such passage to be made in the most orderly manner and with the least loss of assets.

PRICING INVENTORIES OF FINISHED PRODUCTS

(Continued from Page 70)

zations in the industry of a similar financial cross section, regardless of the location or the type of operation. Further it will rarely happen that at the close of a fiscal year inventory prices will require adjustment if inventories are priced in this manner as a part of the usual routine.

My criticism of the method is easily stated. When you know the actual margin that results from your operations you have a fact of sufficient value to reflect in your accounting. When you make a number of arithmetical calculations which result in a breakdown of this significant figure into meaningless parts and then incorporate these into your accounting—you have performed some needless work which nets you less than nothing.

The attempt to apply this principle to the individual inventories of an organization which maintains a large number of bulk stations and service stations so that an individual monthly profit and loss statement can be made for each unit would require the performance of a stupendous amount of work at the end of the month. Perhaps this constitutes a real reason why the oil industry has so many organizations, both large and small, which profess they find it impracticable, or too expensive, to find out which sales units operate at a profit or a loss.

Real Purpose of Accounting

In order to explain the method which seems to me to have the main advantages and the least disadvantages it is necessary to get back to the real purpose of accounting—that of performing a service to management.

If management is to be successful in all of its activities—it must be successful, that is, earn profits in each of its activities—and that means it must earn profits in production, in refining, in selling and in its trading. Success is measured in terms of dollars earned.

It will be impossible to develop the amount of earnings unless we set up some method of pricing so that when commodities pass from one jurisdiction into another they are given a price which currently reflects the value at the time such change of ownership takes place.

Further, the responsibility of management covers the satisfactory co-ordination of all the elements of a business enterprise; and involves in particular the manipulation of purchases and sales so that without interruption to production, manufacturing or selling the results of unfavorable price movements will be of least effect and full advantage will be taken of favorable price movements. Whether the result of these operations is a profit or a loss, it is important that the profit or loss which accrues to an organization from the fluctuation of prices for raw materials and finished products be isolated so that the results arising from operation of the production department or the refining department or the selling department may be judged on their own merits. Unless this is done it is very difficult to make comparisons of monthly results and build up standards of performance for each activity.

We will assume that at the time that commodities pass from one of these departments to the other that equitable values are established for these commodities; and on the basis of these transfer values there is developed a profit and loss statement for each of these departments each month.

General Principle

In order to do this we lay down the general principle that the accumulation of reserve stocks of raw materials and of finished products is a responsibility of the trading department, or of management itself; and that such reserve stocks, whether of raw materials or of finished products, whether located in the field, at the refinery or at important distributing points, are the property of the trading department.

The production department is credited at current market prices for the crude oil that passes out of its ownership; the refinery is charged at current market price for the crude that it consumes, as well as the purchased stocks that it receives; the refinery is credited at current market price for the finished commodities produced; and the sales department is charged at the current market price for commodities at the time they are shipped for them or to them.

The profit and loss statements of the production department, the refinery and the sales department are valuable indicators of the success of these departments in performing their part of the general function—that of earning profits.

In pricing the stocks that are in the possession and ownership of the production department, which are to be relatively small, we can use the current market price, reduced by the estimated profit of so much production and reduced by an estimate of the expense still required to enable possession to be passed to others. For all stocks in the possession and ownership of the refinery we can use the purchase price or the transfer price.

In Process Stocks

For "in process" stocks at the refinery it is suggested that an estimate be made of the ultimate production of finished stocks that can be expected when the processing has been completed; and that on the basis of this estimate a percentage calculation be made of the value of each "in process" stock; that this value be reduced by an estimate of the expense required to make the finished products; and that this adjusted value per gallon be used to establish the value of "in process" stocks. For all stocks in the possession and ownership of the sales department it is suggested that the price of transfer be used—combining with the previous inventory to obtain the running average.

Again I would like to point out the fact that neither the production department, the refinery nor the sales department are permitted to have in possession and ownership reserve stocks which have been accumulated as the result of company policy to accumulate reserves at times of low prices. Their ownership will be limited to the quantities which are considered sufficient for continued satisfactory operation.

With this basis of pricing in effect we need to have in mind a protection against "unearned profit" or of falling prices. With the prices that have prevailed since the close of the accounting as a gauge of values, for the decision need not be made until practically all of the accounting work has been finished, it becomes a very simple matter after making a comparison of the values developed by the running average method to decide whether an adjustment is needed. If needed, a journal entry affecting an inventory adjustment account and the profit and loss account—and all of the operating reports and statistics will remain unchanged barometers of the degree of success in the various activities.

This scheme of pricing appeals to me as the most valuable—since it presents the maximum of information with the minimum of effort. Under the policy in use by nearly all organizations—"cost or market, whichever lower" at the close of the fiscal year, this method is already in use at the most critical and difficult time—when commodity prices are falling. All other systems fail if values drop too suddenly.

I do not urge you to discard your own method of pricing; but let me urge you to develop additional helpful information by pricing at market also. If the steps outlined above are followed out the inventories that are carried by the trading department will be those that show the effect of price changes; and the inventories of other departments will be carried on a basis which closely reflects recent market prices but are primarily useful in that they enable a profit and loss statement to be built up for the production activities, the refining activities and the selling activities which reflects the result of performance complicated to only a slight degree by the vagaries of market prices.

If you have a large organization I recommend that accounting records be installed which will automatically reflect the results of the separate activities of production, refining, selling and trading. If your organization is small it is not essential that you make a radical change. Rearrange your statements of inventory and production so that it will require only a few simple calculations to determine the current result of these four activities.

After this has been done for several months I predict you will find yourselves very much more definitely concerned with the results to be expected from each activity; and in the process of developing standards of performance for each. Other steps will follow naturally as you continue your effort to find significant facts which will guide you in making decisions that lead to efficiency, economy and profit; and these will all be due to one small action on your part—to so price inventories that the information developed thereby will be of real benefit.

SENATORS PROTEST HOOVER'S POLICY

(Continued from Page 30)

this year, and others may be expected to start additional wells as time passes. One company has made only one or two locations, but has 20 permits upon which wells will have to be started at varying intervals during 1929 unless there is a change in the administration's policy. What is said here concerning the two counties in New Mexico applies in a measure to the territory from the Mexican to the Canadian borders. The new policy for conserving oil is forcing the drilling of wells which may result in a flood of oil.

Many of the permits recently cancelled, it is stated, were those upon which permittees had been called upon prior to March 12 to show cause why they should not be cancelled, and the action of the Interior Department in these instances may not have been due altogether to the new policy. However, the applications for permits which had been in the hands of governmental agents for months, some having held up for two years, all went back to the applicants accompanied by the filing fees and notices that the cases were closed. The applicants, having every reason to believe that the policy which had been in effect under three administrations would continue, expected the permits to be issued in due course of time. However, the order of March 12 was retroactive in effect and blotted out any prior rights and equities which the applicants may have established. This rule and its application forms one of the principal grounds upon which protests against the policy are being based.

Policy in Doubt

Following the order of March 12, a large number of notices to permittees to show cause why their permits should not be cancelled were sent out. These gave 15 days in which the permittees could make their showings. Where no response is made, the permits are automatically cancelled. So far, it is understood, none of the permits upon which the permittees have made showings has been cancelled or extended and as a result the policy of the administration has not yet been disclosed by direct action. The Texas Production Co.'s case, it will be recalled, involved the question of co-operative agreements for group development and applications for extensions were made before the order of March 12 was promulgated. The uncertainty extends to applications for extensions of existing permits. The policy of the administration in regard to extension of permits where efforts have been made to drill, or where contracts between operators and permittees to drill have been made, has not yet been disclosed by direct action. The local land offices have many applications for extensions pending and the explanation given why action has not been taken on them is that the time has not been sufficient to examine into them. It has been the custom under former administrations for permittees not to ask for extensions until about the time the permits expired. It is understood this policy was favored by the Government for the reason that the later the showing could be made the more conclusive it would be. At present there are a number of rigs up in the Rocky Mountain States ready to commence spudding, but waiting for action on the application for extensions. One of the major companies, which has an agreement with the permittees on a structure in northwestern Colorado, undertook during the winter to move in material, rig, etc., to a location far removed from the railroads and where there were no roads and when the ground was covered with heavy snow. In this area a caravan of 23 trucks and 100 persons became snowbound and an airplane had to carry supplies to them. However, the company succeeded in getting to the location before the permit expired and made its application for an extension. The department has not yet acted on it and its policy in such an instance is not positively known.

Iles Dome Test

A test of the administration's policy in regard to drilling on leases which have been issued on permit land where a discovery has been made may come in a case to be presented at an early date. The Parkinson permit on the Iles Dome in northwestern Colorado was developed under an agreement between the permittees and the Midwest Refining Co. A discovery was made in a shale horizon and, while it was commercial, it was not a very large one. The horizon in which production was expected, below the shale discovery, was barren. The permittee exercised his rights and took the A (5 per cent royalty) and B (preference) leases. The Midwest acquired the A lease, but did not care to take on the B lease. Subsequently a deep test was drilled and oil

was found in considerable quantities in a lower horizon. The Texas Production Co. then acquired from the owner the B lease surrounding the A lease and some of this ground is productive in the newly discovered horizon. The Government's leases require continuous drilling until a well is put down on every 40 acres. The production in the field already is pinched in to 10 to 15 per cent of capacity and is in excess of requirements, but under the terms of the lease, the operators must continue drilling.

The committee which submitted five questions to Secretary Wilbur for interpretation received an answer on a situation like that at Iles in which he said: "As to leases when issued after discovery of oil or gas, the secretary can and should relieve from drilling additional wells or from the production of oil from existing wells upon request of the lessee * * *." It is understood the Midwest company contemplates making a request for permission to be relieved of this continuous drilling campaign at Iles except for the necessary line wells and that The Texas Company is sympathetic to such an agreement. While the Midwest company may not contemplate making the request to test the administration's policy, but solely for economic reasons, the outcome will be interesting as it will disclose by direct action the attitude of the department towards conservation of oil on public lands where the decision lies entirely in its hands.

Hearing From West

In the meantime officials at Washington are hearing from the West. With the senators and congressmen from western states sending a delegation to confer with President Hoover; with the governors of western states writing to the chief executive; with Senator King introducing his resolution in Congress; with the oil men presenting their case; and hundreds of western people cancelled out from prospecting on the public domain filing their protests, there is little doubt the West has made its voice audible. Whether it has any effect remains to be seen. The Casper Chamber of Commerce sponsored a meeting last week in Casper which was attended by about 500 persons. Governor Frank C. Emerson and former Governor B. B. Brooks were the principal speakers. It was after Secretary Wilbur's reply to the letter from the western governors had been given out. Governor Emerson, a Republican and strong supporter of Mr. Hoover in the campaign, is one of the leaders among the western protestants. Mr. Brooks is a regional director of the American Petroleum Institute for the Rocky Mountain region and is president of the Rocky Mountain Oil & Gas Association. It was proposed that resolutions be sent to President Hoover and Secretary Wilbur asking a hearing to be given a committee headed by Governor Emerson.

A dispatch from Roswell, N. Mex., said that F. S. Donnell, an abstractor of Santa Fe, had announced that he and his associates are gathering data in preparation of a test case to determine the legality of the action of Secretary Wilbur in cancelling applications for permits filed prior to March 12, 1929. The rulings of the Supreme Court of the District of Columbia and of the Appellate Court in the case of Secretary of the Interior West versus the United States ex rel Alling are said to be the basis upon which the suit will be laid. Mr. Donnell said that the case, in which the Government lost in both courts, involved two decisions that have a direct bearing on the new policy. One of them declared, he says, that the Secretary of the Interior is powerless to refuse a permit or to interfere with the statement of the statutes, and that the law does not imply power to the Secretary of the Interior to make rules or regulations in conflict with the statutes.

PROSPECTING IN SALVADOR

It is reported that machinery for oil prospecting has been shipped to Zacatecoluca, San Salvador, in accordance with governmental authorization. It is understood that the Cia. Salvadoranea de Petroleo will shortly begin drilling in this vicinity.

NEED DATA GUIDE TO REFINERY OPERATIONS

(Continued from Page 30)

more practical plan in which the industry is asked to co-operate in the defeat of the "Pennsylvania" plan.

Fayette B. Dow, general counsel for the association, said they were glad to be approached in this manner and that the industry would co-operate as closely as possible in solving the problems of the disposal of industrial waste. He said the industry took a pride in being made a party to the plan outlined by the department of health since it, too, felt obligated to do a public good where reasonable.

Fire Marshals Association

In his address on "Self Preservation," R. A. Wotowitch, Cities Service Co., said:

"We have numerous striking examples of what has been accomplished in the refineries affiliated with the Fire Marshals Association, where 100 per cent of their organizations have become one big, strong co-operative safety fire prevention and fire fighting group. They have not only boiled down their dangers but, as well, in many instances, responded to near-by calls for help, have arrived there and by their efficiency and training have instilled in those around them a sense of feeling that can only be given when the real kind of help steps in. It requires not only the supervision of proper training of these men, but equally important is that of constant inspection of the danger points. All men should be made aware of this, not once a year, but periodically. It then becomes a habit to them.

"Of equally as great importance is the maintenance of all fire fighting equipment in its most efficient condition. No matter how well trained a force may be on hand, without the aid of perfect operating fire fighting equipment they are helpless. The danger to human life is of first consideration; property second. And what chance are you going to give the individuals if your men have to stop and patch up equipment? Delays are dangerous and likewise further increase the peril of those in the danger zone, as well as those who are working for their safety."

Co-operation on Combustion

Herbert A. Ross, combustion engineer of the association, read a paper on "Co-operative Possibilities Developed in a Study of Combustion."

"In my effort to reduce your coal bills, I have found it necessary to give some consideration to your manufacturing costs in order to determine the percentage relationship of fuel costs thereto. It appears that the total costs run from 80 cents to $1.40 per barrel based on crude. This wide variation probably occurs mainly because of the dissimilarity in products run, fixed charges, etc. At the same time, and strange as it may seem, the lower costs usually occur in plants having the older type of shell stills finishing all products and H.R.T. boilers. In these plants some expenditure has been made to improve the efficiency of the equipment, but at the same time none of them neglect a single opportunity to see that this equipment affords economy plus. In other words, they seem to believe in an investment for brains as well as equipment.

"Since the co-operative combustion attempt has been undertaken, the average cost for fuel per barrel of crude run has been reduced approximately 15 cents in the plants operating under our control.

"I am convinced that this cash reduction can be considerably increased under normal operating conditions of throughput capacity, but in order to do so it is absolutely necessary that more consideration be given the recommendations that are made from time to time as the plant is visited, and also that your co-operative activities be continued, and enforced."

An interesting demonstration was made of the training given in groups of the Pennsylvania refineries in first aid work. Two first aid teams, one from the Bradford district and one from the Warren district, competed in three problems and a 2-to-1 decision was given in favor of the Warren Group. Trophies were given each member of the winning team by O. P. Keeney.

The fellowship supper proved a most popular event and was followed by a program of entertainment presented by the Oil City group.

JUST COULDN'T KEEP HIM OUT OF OIL

(Continued from Page 32)

rived there to find that operations had been shut down, that 1,000 oil workers were out of jobs and that Mid-Continent oil was selling for 30 cents a barrel. He remained in Independence a few days only and then went to Bartlesville, Okla., where a few wells had been drilled. Ten days later he got a job with the Western Torpedo Co. (now American Torpedo Co.) driving a stock wagon. It was his work to drive a wagon containing 900 quarts of nitroglycerin from the factory near Bartlesville to oil fields in Kansas. There were no good roads in that territory in those days and when he started out of a morning with a load of death and destruction on his wagon there was always an element of uncertainty as to whether he would end the day in one piece or not.

A Few Months Was Plenty

A few months of this satisfied whatever craving he may have had for daily fellowship with peril and in the spring of 1905 he went to work as a pumper for the Lahoma Oil Co., Bartlesville, at $55 a month. In July of the same year he entered the employ of Douglas, Lacy & Co., as a roustabout. The company, which conducted an investment business in New York, did some operating in the Osage.

In April, 1907, having arranged with friends in Casey, Ill., for an oil field job there, Clyde, who had been bothered by malaria, notified his superintendent, John De Hart, that he would leave the first of the next month. As the day of his intended departure drew near he collected various amounts of money which he had loaned to fellow workmen, washed dirty work clothes and packed the few belongings that were worth taking along with him.

On the morning of the last day of the month Clyde went out to help another man clean an oil tank. In preparation for this task he stripped and then donned an ancient undershirt, a ragged pair of overalls and a decrepit pair of what once had been shoes. Each item of the outfit was a thing that could be thrown away as soon as it had fulfilled its purpose that forenoon. In the tent which served as his home he left all his worldly possessions, including cash assets of $123.50, representing loan collections and his last pay from the company.

Returning from the tank-cleaning job, ready to wash up, put on some presentable attire and start for Illinois, the young man found that in his absence fire of undetermined origin had destroyed his tent and its contents—his clothing, his money, everything he owned save the superannuated outfit he was wearing at the moment. Poking among the ashes later, he fished out three silver dollars and a half-dollar which had been fused together by the flames. He still has this memento.

Why Keep a Watch if You've No Pocket?

Clyde was remarking to a sympathizing fellow oil worker, "Well, I'm sure cleaned out," when he noted his watch, valued at about $40, which he had tucked into a pocket of the old overalls. Acting on a sudden impulse to make the clean-up complete, he yanked out the watch and flung it into the middle of Sand Creek with the announcement, "Now, then, I haven't got a damn thing."

This was a concise and accurate statement of the case. Clyde didn't even have clothing fit to wear into the oil field boarding house for luncheon. Mack Winn came to his aid. Mack was 5 feet tall and weighed 267 pounds. Clyde was 5 feet 11½ inches tall and weighed 145 pounds. If he had appeared at a masquerade ball in the outfit he wore to the boarding house that day the judges would have handed him first prize without looking at the other contestants. The trousers which set off Mack's plump architecture quite satisfactorily reached only a little below Clyde's knees. He wallowed helplessly about in vast surplus areas of the shirt. The vest and coat flopped grotesquely with his every movement. The hat was preposterous.

Heavy of heart but looking like a stage comedian ready to go on for his turn, Clyde not only appeared at the boarding house dining table, but he went to Bartlesville, where after scoring a distinct hit with street crowds who evidently thought he was trying to stir interest for advertising purposes, he startled a clothing merchant by entering his store and asking for some new apparel. Between outbursts of laughter the merchant fitted him out with a new suit.

Before starting for Bartlesville Clyde had gone to Superintendent De Hart with the information that he had changed his mind and would keep his old job. As he had no money for railroad fare to Casey, the reason for the altered plans was obvious.

But Advancement Came Fast After That

Two weeks after this incident the foreman of the company's Lot No. 195, an area 3 miles long and a half mile wide, quit, and Clyde was chosen to succeed him. From that time the young oil man held supervisory positions of increasing responsibility. Also the malaria ceased to plague him. In August, 1907, he was made a district foreman, having jurisdiction over Lots 195 and 67. The next year the company sold its holdings to the Creston Oil Co., which was owned by Waite Phillips, L. E. Phillips, Frank Phillips and Judge J. J. Shea.

In 1910 the Creston company was sold to the Gypsy Oil Co. Mr. Alexander, who now had charge of all operations, went to the Gypsy company along with the property. Later in the same year the Gypsy consolidated the Creston property with others of its holdings. Mr. Alexander then became foreman of Lot No. 69 for the Central Fuel Oil Co. In 1913 he was promoted to district superintendent of that company's holdings in the Osage, then comprising 480 wells. He remained in this position until July, 1917, when he resigned and joined the newly organized Phillips Petroleum Co. as general superintendent. Here he was placed in charge of all the company's operations, including production, refining, pipe line and natural gasoline plants. On April 3, 1923, he was elected vice president, but his duties remained virtually the same.

In 1908 Mr. Alexander married Miss Euna Tirk of Hartford City, Ind. They have two sons, 19 and 16, and a daughter of 12. Mr. Alexander has resided in Bartlesville since 1917 and he has been active in business and civic activities of that city. He has two brothers, both drilling contractors, J. C. Alexander in Borger, Tex., and E. J. Alexander in Amarillo, Tex. Mr. Alexander is a director of the First National Bank of Bartlesville and of the First National Bank of Tulsa. He is a director and vice president of the Bartlesville Chamber of Commerce and a member of the Rotary Club. He loves hunting and tries to spend a few weeks each year in the big game country.

HUMBLE LINE TO ALWORTH POOL

SAN ANTONIO, Tex., Apr. 27.—Humble Oil & Refining Co. after filling two 55,000-bbl. tanks erected in the Charco Redondo Pool in southern Zapata County in the Laredo territory, has extended its line from the Alworth Pool in Jim Hogg County, a distance of about 15 miles by building a 4-inch line and will begin running the oil. Production there is at from 150 to 250 feet and it is one of the most remarkable shallow pools in the world, spreading over a big area and capable of important production. There will be considerable development following the completion of the 4-inch line. The field was discovered many years ago but 50 miles from a railroad with no wagon roads or pipe line its development has waited on transportation facilities.

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Baker Cement Equipment is today marking a new era—a stride ahead in guiding, floating and cementing equipment. Solid concrete now takes the place of cast iron. A celeron ball valve with the valve seat of the same material built into the concrete makes the valve operation positive.

Cement acts as a reinforcement strengthening the shoe or coupling.

It is much easier drilled out than cast iron.

The well is left free and clear of any iron which would interfere with further operations. Especially coring directly under the shoe.

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Baker Cement Float Collar

A solid concrete plug containing a celeron ball check valve and seat is cast and anchored in a special seamless steel coupling 16″ to 18″ in length. The celeron ball valve is positive in action. This type of float is preferred by many operators in preference to the float shoe. Although many operators when running in long strings use both the Float Shoe and the Float Collar.

Baker-Burch Cement Float Shoe

A plain Casing Shoe with a solid concrete guide-shaped plug containing a celeron ball check valve cast and anchored in rounded grooves in the Shoe.

Safer and stronger in every way than a cast iron floating plug. Easily drilled out and leaves the well free of any foreign material which would interfere with further drilling and coring operations.

Baker-Burch Side Hole Cement Float Shoe

The same as the regular Baker-Burch Float Shoe except it has side circulating holes as well as those on the bottom. The side holes insure free and easy circulation and are especially desirable when cementing long and heavy strings of casing on or near bottom.

Hundreds of successful jobs in the deepest fields in the world have proven its superiority in landing and cementing long strings.

MEN KNOWN IN OILDOM

Bruce Johnstone

Bruce Johnstone of Chicago, elected a member of the board of directors of the Standard Oil Company of Indiana on April 15, to succeed Dr. William M. Burton, resigned, is a member of the law firm of Burry, Johnstone, Peters & Dixon. Ill health compelled Doctor Burton to retire from active work.

While Mr. Johnstone never has been officially identified with the Standard Oil Company of Indiana, the company has at times called upon him for assistance in legal matters. He, like Melvin A. Traylor, will serve as a sort of associate director, maintaining his affiliation with his law firm, which specializes in corporation law, railroad reorganization and estates.

As former president of the Municipal Voters League and present vice chairman of the Chicago Bureau of Public Efficiency, Mr. Johnstone is well known in Chicago, where he has also served as special assistant corporation counsel, representing the city in voting machine litigation through the years 1913-1920. In 1925 Mr. Johnstone acted as Special Assistant United States Attorney General representing the Federal judges in the Grossman contempt proceedings before the United States Supreme Court.

Mr. Johnstone was born in St. Paul, Minn., and received his public school education in San Francisco and Chicago. He has been a resident of Chicago since 1889. He was admitted to the bar in 1897 and in 1903 became a member of the law firm with which he is now identified. In 1905 he was married to Elsie B. Leale of San Francisco. He is a member of the American, Illinois State, Chicago and New York City Bar Associations, and of the Union League, Mid-Day, City, Law, Quadrangle and South Shore clubs.

PERSONAL PARAGRAPHS

F. H. Wickett was recently in San Antonio, Tex., on a visit.

* * *

Eugene Connors, of New York, formerly a Tulsa resident, has been visiting his parents in Bradford, Pa.

* * *

Leroy M. Edwards, of Los Angeles, Calif., has been named resident agent of the Pure Oil Company in California.

* * *

George W. Brake has left for Negritos, Peru, after a visit to Toronto on business for the International Petroleum Company.

Waite Phillips, chairman of the board of Independent Oil & Gas Company, is enjoying an outing on his ranch in Wyoming.

* * *

W. R. Dickinson, president of the Richfield Consolidated Oil Company, was re-elected to that office at the company's annual meeting.

* * *

Robert Paul, of Petrolia, Ontario, at one time a prominent figure in the Canadian oil industry, on April 11 celebrated his ninetieth birthday.

* * *

P. H. O'Neil, recently elected an officer of the Petroleum Corporation of America, has been elected a director of the Rice Ranch Oil Company.

* * *

Daniel J. Moran, president of the Marland Oil Company, and E. L. Nicklos, vice president of the company, were in Los Angeles, Calif., recently.

* * *

A. A. Little, who has been spending the winter at El Paso, Tex., is going to Denver, Colo., to look over the situation in the Rocky Mountain region.

* * *

C. A. Knight, assistant geologist in the Shawnee division of the Amerada Petroleum Corporation, has been transferred to the new field in Michigan.

* * *

Ted Holmes is spending six months in Petrolia, Ontario, after filling a three-year contract with the Anglo-Persian Oil Company in the Persian fields.

* * *

C. P. Parsons, of the Erle P. Halliburton Company, Duncan, Okla., is making a trip through the Gulf Coast territory in the interests of his company.

* * *

Charles Corwin, Bradford, Pa., oil producer, is in Hollywood, Calif., to attend the forthcoming marriage of his daughter, Miss Jane Corwin, to Jack Artley.

* * *

D. W. Matheson has returned to Petrolia, Ontario, on three months' furlough, after spending three years in Peru with the International Petroleum Company.

* * *

Thomas McCort, of Petrolia, Ontario, will spend the coming summer in Canada after three years with the International Petroleum Company in the Peruvian fields.

* * *

D. R. Snow, chief geologist of the Barnsdall Corporation, was recently on a visit to San Antonio, Tex., and is arranging to open a branch office for the company there.

* * *

N. S. Wilson, of the producing department of the Midwest Refining Company, expects to leave soon for California to supervise the drilling of a well for his company

* * *

D. C. MacMillan, for some time with the Imperial Oil, Ltd., sales force at Calgary, Alberta, has been made assistant manager for that company at Regina, Saskatchewan.

* * *

James (Mickey) O'Connell, whose activities in the oil business have taken him into many fields, is now in the Luling, Tex., district for Roeser & Pendleton. He visited Fort Worth last week.

* * *

William Holland, superintendent of operations for the Ohio Oil Company in the Rocky Mountain region, has returned to Casper, Wyo., after an inspection trip of properties in northern Montana.

* * *

W. L. Rinaman, general manager, and R. W. Hendee, vice president, of the Oklahoma Natural Gas Corporation of Tulsa, were recent visitors to Southwest Texas. They are supplying gas to Austin, Tex.

* * *

R. H. Feltner, head of the land department of the Southern Crude Oil Purchasing Company at Fort Worth, Tex., was recently a visitor in Southwest Texas and at the San Antonio office of the company.

* * *

A. E. S. Landsittel, sales manager for the Globe Oil & Refining Company and the Northwestern Refining Company, Tulsa, is spending a vacation at the home of his mother at Lowell, Ohio. Mr. Landsittel expects to be away from the Tulsa office several weeks.

Tony Statts, South American representative for Hinderliter Tool Company, and Fluid Packed Pump Company, will leave shortly after the first of the month for Maracaibo after a two months' vacation in America.

* * *

S. W. Keoughan, president of the Continental Oil Company, was in Los Angeles, Calif., recently, and after spending several days on the company's wildcat acreage at Carpenteria, authorized the drilling of two new wells.

* * *

John McFadyen, vice president and general manager of the Ohio Oil Company operations in the Rocky Mountain and Pacific Coast regions, has returned to Casper, Wyo., from an inspection trip of properties in California.

* * *

A. E. Humphreys, Jr., president of the Humphreys Corporation, Denver, Colo., and Joe Padgett of Denver spent several days at the Houston, Tex., offices, making the trip in the company's monoplane with Eddie Brooks as pilot.

* * *

L. P. St. Clair, president of the Independent Oil Producers Agency and vice president of the Union Oil Company of California, was re-elected president of the former organization at the annual meeting recently held in Bakersfield, Calif.

* * *

John R. Suman, director, and H. L. Edwards, superintendent of production, of the Humble Oil & Refining Company, Houston, Tex., have returned from an inspection of some of the holdings of the company just over the Mexican border.

* * *

W. L. Greiner, formerly general auditor of the Midwest Refining Company, has been elected treasurer of the company to succeed T. A. Pedley, resigned. C. J Barkdull was elected a director to fill a vacancy which has existed for some time.

* * *

Dr. Willard Rouse Jillson, state geologist, announces that the Kentucky Geological Survey, which was established in Frankfort in 1854 with David Dale Owen as its principal geologist, will celebrate its seventy-fifth anniversary this year.

* * *

H. J. Smith, of Albany, Ga., has taken a position as salesman in the tractor equipment division of the Browning-Ferris Machinery Company, and will work out of Houston, Tex. His work will bring him in contact with the producing and pipe line companies of the Gulf Coast.

* * *

W. J. Morrison, purchasing agent for Simms Oil Company, has been elected president of the Purchasing Agents Association of Dallas, Tex. Other officers include: Vic Hansen, first vice president; Frank McClung, second vice president; George W. Martin, secretary, and L. B. Mitchell, treasurer.

* * *

Fayette A. Jones, of Socorro, N. Mex., A. F. Black and Guy Ray, of West Virginia, composed a party inspecting the San Juan Basin fields in New Mexico. Mr. Jones was president of the School of Mines of New Mexico, and was conductor of the party which also visited the Kutz Canon district.

* * *

Robert D. Black, advertising manager, and W. A. Rowe, production manager of the Black & Decker Manufacturing Company, Towson, Md., have returned from Europe where they spent several months at the factory of Black & Decker, Ltd., Slough, Bucks, England, and in visiting European markets.

* * *

Herbert Smith, of the Sinclair Oil & Gas Company, Charles C. Brown, general manager of E. W. Marland, Inc., C. C. Hoffman, Texas manager of the Empire Gas & Fuel Company, and S. R. Dorn, superintendent of the land department of the Marland Oil Company of Texas, have all been recent visitors to San Antonio and Southwest Texas.

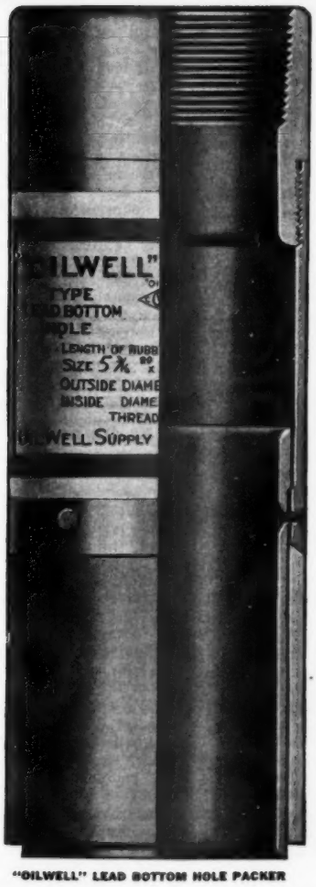
* * *

Earl Miller, who has been vice president of the Shell Oil Company of California for the past year, has been transferred to the Shell Petroleum Corporation with headquarters at St. Louis, Mo. H. R. Gallagher, formerly vice president of Shell Oil Company of California, has returned to his former position after spending about a year in charge of the Shell Development Company, Shell Chemical Company, and Simplex Refining Company.

A POSITIVE SEAL

THE operation of setting the "Oilwell" Lead Bottom Hole Packer is the same as with the regular "Oilwell" Bottom Hole Packer. The weight of the casing shears the rivets and forces the lead down on the shoulder between the packer and the wall.

"Oilwell" Lead Bottom Hole Packers assure a positive seal. The lead cannot be forced under the inner sleeve into the open hole to be a hazard when drilling.



"OILWELL" LEAD BOTTOM HOLE PACKER

126

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Natural Gas Developments

EARLY ESTIMATES OF GAS OUTPUT VERIFIED

Recent figures on the gas production of the Chickasha gas field, Oklahoma, indicate with what degree of accuracy it is possible to estimate gas reserves if these estimates are based upon careful analyses of field conditions, says the United States Bureau of Mines, of the Department of Commerce.

In March, 1926, at the request of operators in the Chickasha gas field, Oklahoma, and in co-operation with the State of Oklahoma and the Oklahoma City Chamber of Commerce, the Bureau of Mines issued an engineering report on the Chickasha gas field, Grady County, Oklahoma, giving estimates of the recoverable reserves in that field.

The two main producing zones in the Chickasha gas field are the Nichlos and the Ramsey. A previous report of the Bureau of Mines issued in May, 1923, discussed the Nichlos zone in some detail, but prior to the time of making the supplementary report in 1926 very few data were available on the deeper or Ramsey zone, which was believed to contain much larger gas reserves than the Nichlos.

The bureau engineers in submitting their report stated "Past experience has shown that the method for determining gas reserves applicable to any field depends upon various factors. An intimate knowledge of field conditions, field methods, rock pressures, and amount of gas withdrawn (which would include fairly accurate estimates of the amount blown into the air) are necessary before any estimate of the recoverable reserves can be made."

Two Methods Used

Two methods were used in estimating the original recoverable gas in the Nichlos zone—the saturation method and the volume-pressure method. Using the saturation method, the estimated recoverable gas, based on 60 per cent recovery, was 24,700,000,000 cubic feet. Using the volume-pressure method, an estimate of 19,400,000,000 cubic feet recovery was obtained. After three years of gas delivery metered into pipe lines from the Nichlos zone, revised estimates, by the volume-pressure method, show that the original deliverable gas was approximately 21,000,000,000 cubic feet; a difference of less than 8 per cent.

For the Ramsey sand, the Bureau of Mines engineers in 1926 estimated by the saturation method that the total volume of recoverable gas was 64,000,000,000 cubic feet. Estimates as of March, 1929, by the volume-pressure method, indicate an original volume of deliverable gas of 57,000,000,000 cubic feet. If recognition is given to the fact that the later estimates are based upon gas that reasonably could be expected for sales delivery only, whereas the earlier estimates by the bureau engineers considered, in addition to the quantity of gas marketed, the gas blown into the air when making open-flow tests, gas to the air when removing water, wild gas wells, and gas used for fuel in the field, the difference becomes almost negligible. For example, assuming open-flow tests were made at least every three months on all wells, approximately 100,000,000 cubic feet of gas would be blown to the atmosphere during one test. On a quarterly basis, at least 1,200,000,000 cubic feet of gas were wasted in three years in making open-flow tests. Fortunately through co-operative effort of the operators in the Chickasha Field, state conservation officers of Oklahoma, and the Bureau of Mines, methods are being devised whereby this excessive waste is being reduced appreciably.

BULK OF CARBON BLACK MADE FROM RESIDUE GAS OF GASOLINE PLANTS

By Thomas D. Cabot

Lampblack is defined in Webster's dictionary as the fine, impalpable soot obtained from the smoke of carbonaceous substances which have been only partly burned, as in the flame of a smoking lamp; whereas gas black is defined as a superior kind of lampblack collected by introducing a cold iron surface into a luminous gas flame. When first introduced gas black was given the lengthy name of hydrocarbon gas black, was later called carbon gas black, and, at the present time, is usually sold under the name of carbon black. In the American trade, lampblack is usually understood to be a soot deposited by the smudge process and made from oil, resin or some other solid or liquid raw material; whereas carbon black is the term applied to a black deposited by actual contact of a flame upon a metallic surface.

Using the name "lampblack" in its wider sense as any commercial form of soot, it may be prepared in three different ways—first, by the combustion of dead oil of tar, pitch or resin or some other carbonaceous raw material with an inadequate supply of air and the collection of the floating particles of soot that escape unburned from the flame and slowly deposit themselves on the walls and floors of the collecting chambers; second, it may be formed by the direct impact of a flame upon a collecting surface; third, it may be formed by heating carbonaceous vapors to the decomposing point, apart from the air or flame.

Lampblack, which is a soot, should not be confused with bone black, ivory black, drop black, vine black, Frankfort black, Swedish black and other charcoal blacks, nor with the various mineral blacks, nor with graphite, which is also known as plumbago and black lead, although it contains no lead in its composition.

From time immemorial soot has been used by some savage tribes to paint their faces and to color other objects, but the civilized man has long since discarded ordinary soot as being too impure, gritty and weak in coloring power, and there is now no market for ordinary soot for any of the uses to which lampblack is commonly applied. Ordinary soot contains about 50 per cent of grit, empyreumatic matter and other impurities, and is too weak in color to have commercial value.

The commercial lampblack of today is manufactured by the smudge process principally from coal tar oils, such as "dead" or creosote, which contains a large amount of naphthalene, a certain amount of phenol and various aromatic hydrocarbons particularly suited to the manufacture of lampblack by reason of their large percentage of carbon. When burned with an inadequate supply of air there is obtained in the form of lampblack by deposition in suitably arranged chambers from 15 to 40 per cent by weight of the oil burned. The oil is usually allowed to flow in a sluggish stream into an earthenware or iron pot or pan, in which it burns and from which the smoke passes through flues into the chambers in which it is deposited.

Practically all the carbon black manufactured today is made from natural gas. Carbon black can be made from oil by burning oil in suitable burners beneath a plate in contact with the flame on which the black is deposited, but this process is not now in use so far as we know. Koehler's book on the "Manufacture of Black," mentions four different firms that at one time had factories for the manufacture of contact black from oil, using a heavy mineral oil. The capacity of these factories was small and there is now probably more carbon black being made in a day than was ever made by these factories in a decade.

Replaces Lampblack

By the beginning of the present century, carbon black had almost entirely replaced lampblack in the printing ink industry and, in fact, carbon black was a necessary ingredient of the inks required for modern high speed presses. The increase in production of carbon black in the last 30 or 40 years has been principally due to new uses and to increased use in its present fields rather than to replacement of other pigments.

Carbon black was used in rubber only for coloring and only in a very small way prior to 1915. When its remarkable effect as a reinforcing agent in rubber was discovered, the growth of consumption was enormous, so that from 1917 to 1923, the production could not keep pace with consumption, and at the beginning of 1923 there was an acute shortage of carbon black. Picture, then, an industry which has grown from a production of a few hundred pounds shortly after the Civil War, by steady progress to a production of over 180,000,000 pounds annually. In 1887 the production was about 1,000,000 pounds; by 1900 it had increased to 6,000,000 or 7,000,000 pounds, and by 1915 to about 20,000,000 pounds annually.

We have no authoritative figures as to the percentage of carbon black used in each of the consuming industries, but estimate that about 70 per cent is used in rubber, 20 per cent in printing ink, and 10 per cent in all of the other industries, including paint, varnish, mortar color, paper, paper board, vulcanized fiber, phenolic condensation products, phonograph records, carbon copying paper, stove polish, shoe polish, leather finishing, crayons, artificial leather, india inks, linoleum, artificial stone and tile, and as an explosive in conjunction with liquid oxygen.

Of the total consumption about 75 per cent is in the United States, and 25 per cent abroad. There is no carbon black manufactured from natural gas outside of the United States. Lampblack is considerably cheaper in Europe than in the United States, whereas, due to the high ocean freights and the necessity of packing the black in wooden cases for export shipment, carbon black costs about 3 cents per pound more in Europe than in the United States. The consumption of carbon black in Europe is, therefore, proportionately less than in the United States.

Large Supply

The natural gas from which carbon black is made is gradually becoming depleted, which leads to alarm in the minds of some consumers lest their supply be cut off. It is not likely that carbon black can be made from any other raw material at a cost comparable to the present price, but even though it eventually becomes necessary to make carbon black from some other source, it is probable that its utility will be sufficient to justify its use.

Practically all of the carbon black being made today is made from gas for which there is no other market, and much

(Continued on Page 96)

SYNTHETIC PROCESS FOR ENRICHING GAS

In recent years numerous investigators throughout the world have given attention to the possibilities of producing hydrocarbon compounds from a gas which can be made readily from coal or coke, namely, from water gas, the Department of Commerce points out. It has been so demonstrated, on a laboratory scale, that these compounds can be thus synthesized that a brief study was made at the Pittsburgh Experiment Station of the United States Bureau of Mines of some of the important factors governing the development and utilization of such a process in conjunction with gas works operation. Some of the factors have been recently discussed in Bureau of Mines Serial 2,840.

"It appears that there is a definite set of conditions which must prevail before it is economical to enrich gas in this manner," says the bureau's bulletin. "Using catalysts thus far found to be suitable, it is necessary to clean the water gas to an unusually high state of purity because of the poisoning effect of sulphur compounds upon the catalyst; a process has not yet been developed for this purpose. Furthermore, the design of a reaction chamber satisfactory for large-scale operation is still a problem largely because of the large amount of heat evolved during the process. Because of these and other similar conditions, the exact cost of enriching gas with synthetic hydrocarbons made at the gas works is not known. However, it is evident that even under very favorable conditions it will not become generally economical until gas oil is 9 to 10 cents a gallon."

OIL AND GAS LABORATORY

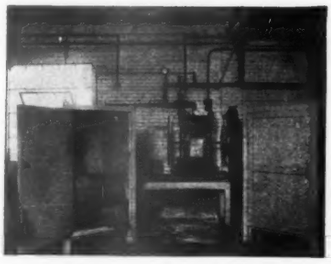
SHREVEPORT, La., Apr. 27.—The minerals division of the Louisiana Department of Conservation now has a laboratory equipped to make any of the analyses so often desired by oil and gas operators. In charge of H. H. Pier it is engaged at present in analyses of various oil field brines and in determining porosity of the sands in this division's gas fields as a detail in arriving at an estimate of their probable reserves and from that and other factors, pressures, thickness, areas, pull, etc., their probable life. Qualitative analyses of various grades of oil produced in the state and also of the gas are on the program for the state as well as for operators who heretofore have been dependent upon outside agencies for information concerning the character and value of their oil or gas.

LINE FROM BEACH TO MANDAN

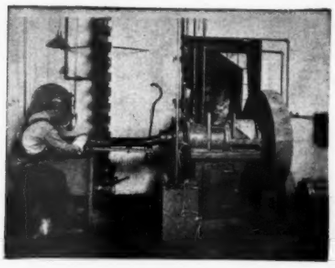
The Montana-Dakota Power Co. representatives are reported securing right of way for the gas line to be laid this summer from the gas fields adjacent to Baker, Mont., to serve generally the larger communities along the main line of the Northern Pacific Railroad. The trunk line will follow almost a direct line from Beach to Mandan, and laterals will be laid to the various towns.

GAS COMPANY FORMED

COLUMBUS, Ohio, Apr. 27.—The Ashland Oil & Gas Co., incorporated for the announced purpose of drilling for gas near Ashland, Boyd County, Kentucky, has been formed here. Ray R. Gill, state fire marshal for Ohio; Oscar F. Grothkopf of Columbus and Henry W. Leeper of Athens, Ohio, are the incorporators. The new company has several leases in Boyd County. Mr. Gill was formerly with the Federal Oil & Gas Co. of Akron, Ohio.



After milling, each batch is placed in a cabinet under lock, to cure.



Tuber used in forming slugs prior to cure. After cutting to correct length they are conveyed to Weighing Dept. by bucket elevators.

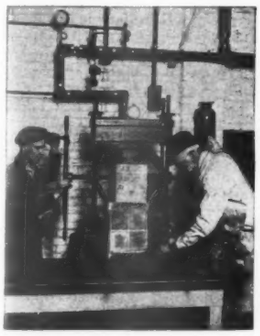
A trimming machine finishes each protector.

Bettis Protectors in stock and ready for shipment. Shipment in foreground is for over-seas.

TO Your well

Test strips are milled from every 25-lb. batch of cured rubber for experimental purposes.

Each rubber slug is weighed to a fraction of an ounce, prior to moulding.



Experimental press in which test strips are cured. Three individual samples are tested and rechecked.

Rubber slugs are loaded into moulds and cured scientifically.

Electric testing machine. Testing to 5,000 lbs. and elongation of 800%.

After curing, each Bettis Protector is tested for external and internal diameter

Samples of rubber are withdrawn from each cabinet and tests made to ascertain condition—chemically, physically, and mechanically. These samples are converted into test strips under the identical conditions prevailing for the factory runs. Samples taken from each 25-lb. batch are converted into sheets and cut to a size approximately 4″x5″. They are then placed in an experimental press and cured, after which sample strips are tested by an electrical testing machine which physically rends the rubber and records the findings electrically. It is the most sensitive means of testing rubber known. Not only must the test strips meet a breaking strain of nearly 5,000 lbs. to the square inch, but must equal an elongation of approximately 800%. All strips must test uniformly and must check for homogeneous structure. In this way every Bettis Protector is capable of withstanding much greater abuse than ordinarily encountered in service upon the drill pipe.

The rubber entering actual production is remilled into sheets, cut into strips and fed into a tuber for sizing. The slugs, are then trimmed to accurate weight, placed in the moulds and cured scientifically. The moulding machines work upon a hydraulic principle, embodying a pressure of approximately 2,000 lbs. to the square inch obtained by a combination of hydraulic force and steam.

The finished protectors are individually tested for hardness, resiliency and dimensions by the most accurate and scientific methods known.

The rubber in Bettis Protectors is the toughest known. It is seamless, has practically no grain, and resists tearing. When installed upon the drill pipe it "stays put" and retains its original life as long as it is in service.

Patterson-Ballagh Corporation

Insurance Exchange Building, Los Angeles

Mid-Continent Distributors:

Bettis Sales Co., 616 Public National Bank Bldg., Houston

New York Office: 39 Cortlandt St.

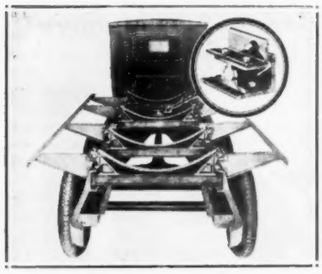
Carried in stock at Los Angeles, Santa Fe Springs, Ventura, Bakersfield, Coalinga, Long Beach, Tulsa, Houston, Wink, Texas; New York City.

EQUIPMENT AND SUPPLIES

DEVICES PROTECT TRUCK TANKS FROM ROAD SHOCK

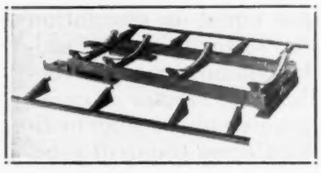
Two unusual features in truck tank supports perfected by the Standard Steel Works, Kansas City, Mo., are tri-point suspension and shock absorbing saddle trap supports. Patents are pending on both devices.

Standard tri-point suspension is designed to protect both the tank and the truck chassis from twist and strain. The rear of the tank frame is anchored rigidly to the chassis on each side, providing two points of support. The entire front rests on a single point of suspension, the new Standard pivoted socket bearing. This self-locking, cast steel bearing keeps the horizontal axis of the tank always in the same plane, regardless of the irregular movements of the truck chassis. No matter how rough and uneven the highway may be, no matter whether all four wheels should be at different levels—this flexible suspension is said to save the tank from all twisting strains.



Detail of the Standard innovations in truck tank support. The pivoted socket bearing (note enlargement in circle) is 4 inches long.

The shock absorbing saddle strap supports form a cradle in which the tank is cushioned against road shocks. The impacts and strains of transportation "die out" in these saddle straps, without being transmitted to the tank. They are made of mild steel, covered with webb belting, are pivoted on special steel bolts mounted in cast steel brackets. This cushioned support is designed to prevent crystalization of the tank shell at points of support—eliminating one of the chief sources of shell rupture and leakage.



Improved Standard truck tank frame or support with removable brackets for can racks, barrel carriers, etc.

This combination of tri-point suspension and saddle strap support is designed to keep the tank fleet in constant service with the least possible time out for repairs. The brackets with which this truck tank frame is equipped are removable and can be placed in any position to take care of varying equipment needs in the way of can racks, barrel carriers, lub tanks, etc.

AGENT FOR PNEUMATIC TOOL

In addition to its engineering, manufacturing and contracting business, the Stearns-Roger Manufacturing Co., Denver, Colo., announces that hereafter it will act as agent in the intermountain country for the Chicago Pneumatic Tool Co., New York.

OFFICE OF UNITED IRON WORKS IS NOW IN TULSA

The entire executive staff of the United Iron Works, Inc., has been moved from Kansas City, Mo., to Tulsa, including D. C. Morrow, president; J. H. Campbell, vice president and treasurer; T. R. Stokes, secretary, and F. N. McCall, purchasing agent. F. J. Bradford, manager of the rig iron sales department, and V. H. VanHorn, assistant manager, already had their homes in Tulsa. An office staff of 25 workers was transferred.

The company's Tulsa plant was taken over when the United Iron Works absorbed the Bradford Rig & Reel Co. Another plant is in Okmulgee, Okla. The chief plant is in Iola, Kans.

The United Iron Works manufactures oil field derricks, storage tanks up to 80,000 bbls. capacity, and complete refinery equipment.

FIST LIKE THAT WOULD MAKE ANYBODY NERVOUS

William H. Wood, III, president of the Wood Shovel & Tool Co., Piqua, Ohio, declares that the fist which served as a model for the "Big Fist" brand of shovels is the "biggest and horniest ever found on a human being." The photographer who took a picture of it manifested relief when his job was done.

"Scores of fists were examined and photographed before we found the one we wanted," said Mr. Wood. "We had fists of stokers, stevedores, road workers, lumbermen, about every type of fist imaginable—square ones, knotty ones, round ones and crooked ones.

"Eventually we came across a husky farmer with a fist that took 13½ inches of tape measure to surround it. None of us ever had seen a fist anywhere near its size. The photographer was nervous and asked whether the owner ever lost control of it. If anybody knows of a fist to beat our 13½-inch one, we would like to know about it."

FOXBORO HAS NEW TULSA HOME

The expanding business of the Foxboro Co., Foxboro, Mass., in the Mid-Continent Field has caused it to open new branch headquarters at 28 North Guthrie Avenue, Tulsa. The new location with 5,000 square feet gives the company over twice its former floor space. It provides for an instrument repair shop, facilities for assembling certain types of instruments of special design on which prompt service is required, and enlarges the warehouse capacity. Thus the Foxboro Co. will have a well equipped sales and service branch to take care of instrument requirements of the Mid-Continent Field. J. B. McMahon is district manager.

MOON JOINS ARTHUR McKEE

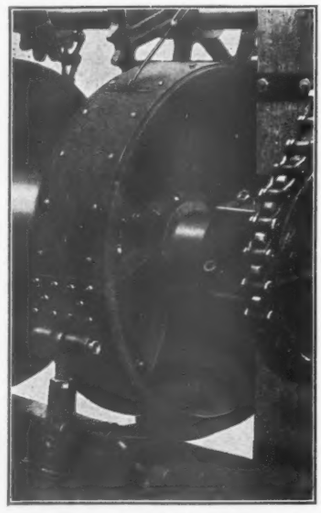
V. T. Moon, who recently left the Marland Refining Co., in Ponca City, Okla., has become associated with Arthur G. McKee & Co., engineers and contractors, Cleveland, Ohio. Mr. Moon, who graduated from the University of Arkansas in 1910 as a civil engineer, held various engineering positions until the World War, in which he served as a captain in the Engineers Corps, One Hundred Eleventh Regiment, Thirty-sixth Division. Returning at the end of the war Mr. Moon went with the Marland Refining Co., and from 1919 to 1920 was chief draftsman. From 1920 to 1925 he was chief engineer of refinery, pipe lines, terminals, loading stations, etc., and from 1925 to 1929 was refinery engineer in charge of all design, construction and maintenance of the plant.

LUCEY BRAKE FLANGE OVERCOMES TROUBLE

In drilling to great depths by the rotary method, where long strings of pipe are used, the hoisting apparatus or drawworks is subjected to heavy loads. This load is controlled by the brakes, which operate on the brake flanges of the rope-winding drum, subjecting them to heavy friction and producing excessive heating. This results frequently in unequal expansion and oftentimes cracking, making it dangerous to operate the brakes further and necessitating expensive and time-consuming repairs.

To overcome this trouble the Lucey free expanding brake flanges have been developed. Their design permits the expansion from excessive heating to come and go, without affecting the other parts of the rope drum.

The brake flange is a free and separate part from the drum spider, which is bolted solidly to the drum center. The brake flange has heavy lugs on its inside rim, which fit into pockets on the drum spider. Through slotted holes in the lugs are passed heavy studs which screw into the drum spider and hold the flange retaining clamps in place. The brake flange is accurately centered on the drum center, but it is always free to expand, as there are no parts to hold it under strain.



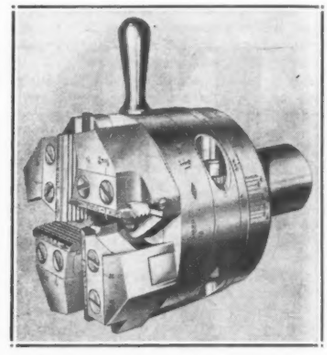
The Lucey drum center is cast solidly on the heavy forged shaft by a patented process. No keys are used, and consequently there are no loose drum centers on the shaft, making a strong and rigid construction. The excessive thrust that comes on the drum ends, or spiders, when the drum is spooled full, as in bailing, is taken care of by thrust collars that are grooved into the heavy shaft. There are no long through bolts to come loose and breaks. The brake flange design is patented.

HAS HIGH BONDING QUALITY

Brickset, manufactured by the Chicago Fire Brick Co., Chicago, is offered as a natural high-temperature cement, with the same coefficient of expansion and contraction as electric furnace fire brick. It has great plasticity and its intense bonding qualities increase in direct ratio with furnace temperatures. Brickset is said to have little reaction with iron, sulphur or any of the ingredients of coal, oil or wood. It is chemically neutral with fuel, gases and ash. Some of the uses for Brickset are for bonding fire brick in boiler settings, forge and welding furnaces, gas generators, heating furnaces, etc.

TYPE F LANDMATIC DIE HEAD FLOATS ON SHANK

The Landis Machine Co., Waynesboro, Pa., manufacturers of thread cutting equipment, has placed on the market a new type Landmatic die head for application to turret lathes and hand operated screw machines. The "F type Landmatic" was developed to meet the demand for a die head which would produce full and correct threads when the stock "ran out" of line, as when the stock is slightly bent, when the turret and spindle are out of alignment or when the gripping mechanism grips the stock off center.



The distinctive feature of the head is in the fact that it floats or flexes on the shank. This allows the head to center itself around the stock, producing a full thread even though the stock revolves eccentrically. The flexible condition is controlled by two heavy springs which always return the head to the central position.

The locking mechanism is independent of the shank and floats with the head proper. The driving torque is transmitted directly from the shank to the head body and is also independent of the rest of the head. It is opened automatically by the retarding of the forward motion of the carriage and is closed by hand. The chasers are supported on the face of the head as is the case in all Landis die heads.

TRADE LITERATURE RECEIVED

The Link-Belt Co., Chicago and Philadelphia, has just issued a 38-page book showing detailed specifications of the 15,000 sprocket wheels it carries in stock. The 15,000 sprocket wheels are made from more than 1,300 separate patterns, which need only to be bored and key seated.

A card in colors mailed by J. E. Rhoads and Sons, Philadelphia, shows a picture of two Tannate Watershed belts which have been in use 5 years with "no slippage, very little stretch and no takeups to date."

Instead of some item of oil field equipment, as customary, the cover page of the current Rig and Reel Magazine, published by the Parkersburg Rig and Reel Co., Parkersburg, W. Va., shows "The Lone Sentinel," a Texas Ranger on guard.

Oakite News Service, magazine of Oakite Products, Inc., New York, describes various cleaning jobs performed with Oakite.

THIRD ABSORPTION PLANT UP

Another absorption plant has been placed in operation by the State Gasoline Corp. at Long Beach, Calif., constituting No. 3 of its plants. It was erected by the J. A. Campbell Co., and Campbell equipment was used throughout.

Petroleum Engineer Is a Regular Guy

Willing to Wear a White Shirt or Get One Dirty. Admits Faith May Move Mountains but He Knows It Won't Dress a 10-inch Bit

By C. F. Barb*

Assuming that a young man has spent four or more years and some money in a petroleum engineering school, has been poured full of knowledge, shaken down and tied so all he presumably learned will not leak out, this question naturally arises: How can he most benefit himself and the industry? In other words, just what is he good for?

The answer is easy: It depends on the man.

We have had men here at the Colorado School of Mines who would have been good line walkers or firemen before they came. After some years at school they still would have been line walkers or firemen, but perhaps not so good. They learned just enough to spoil them for routine work and not enough to make them satisfactory for work requiring initiative and original thinking. They did not benefit themselves and are probably a hurt to the industry because they are often, unconsciously, trouble breeders in an organization. They carry a chronic "gripe" which is extremely contagious and usually incurable. They feel that they should have a better job but they do not feel strongly enough to get it.

However, that type of man is rather uncommon as a graduate engineer, and for the most part the graduates are reasonably straight thinking fellows who remember some of their math, who can differentiate between a Cephlapod and a Dinosaur and who have at least a hazy idea of the difference between the chemical compositions of water and oil.

They Mix in the Oil Field Though

And they know that while oil and water do not mix in polite society, they do mix occasionally in the oil fields and if the producer wants to get his production into the pipe lines he had better find out why they mix and do something about it. So the production man digs out his chemistry text and does it.

Meanwhile his brother refiner has a problem in acid sludges and he digs out his text, probably of the same edition, and goes to work. They are both dealing with the same constituents perhaps slightly rearranged. Or the one may find it necessary to calculate the load a derrick will carry when pulling frozen 8-inch while the other decides whether or not that old trestle will hold up the new bubble tower.

They are dealing with the same materials with the same fundamental problems and they know what to do and do it. And neither of them would wait for an act of Congress or Paul Bunyan and the Big Blue Ox to pull a truck load of material out of a mudhole if a 10-ton caterpillar belonging to someone was handy.

The man that really fits in does not have the idea that all his work must be done with nothing heavier than a slide rule or distilling flask. He is not necessarily ashamed to wear a white shirt and he also is not ashamed to get it dirty. He knows that faith may move mountains but it will not clean out a still or dress a 10-inch bit and it will not clean up a boom town when local police have failed. So he naturally rolls up his sleeves, if there is time, and sees things through. All in all, he is a regular guy.

Student Makes His Choice

The petroleum department of this institution is divided into production and refining branches and the curriculum is arranged accordingly, the student making his choice of branches at the beginning of his junior year. For the first two years of school work, the courses given all students are practically the same, and consist of fundamental work in chemistry, English, physics, mathematics, geology and civil and mechanical engineering. These fundamental courses are stressed and stressed hard as any freshman or sophomore and some upper classmen also will testify. The academic mortality among the students of the first two classes has long been a subject of grave discussion in the faculties and administrative bodies of other engineering schools as well as the School Mines. Repeat courses are often given after midyear finals to enable crippled students to regain a part of the ground they have lost. Occasionally, so many repeat courses are necessary that it is difficult to find time for the regular work of the second term or semester.

If the prospective engineer has survived the pitfalls of his first two years and elects one branch or the other of petroleum engineering for a degree his training differs somewhat in kind but not in principle.

What the Survivors Study

As a junior he is confronted with mechanics, physical chemistry, thermo dynamics, electrical engineering, still more advanced civil and mechanical engineering, English and petroleum drilling, refining and production courses. The chief difference in the work of the producer and the refineries in the junior year is the more extensive study of geology by the one and chemistry by the other.

The seniors have still more English and economics, gas and fuel analysis, hydraulics, internal combustion engines, commercial law, reinforced concrete, pumping machinery, compressed air machinery and more specialized refining and production courses that include refining, refinery engineering, gas lifts, natural gasoline plants, petroleum organization, valuation and accounting and special production methods. If his curiosity is still unsatisfied he may elect further special work in thesis problems of semiresearch nature or do original work on lubricating oils, repressuring, natural gasoline, flooding or what have you?

Now a word about the most important part of the student's training and work from a student's standpoint, his position and salary when he goes into the industry. Note that a man usually accepts a position rather than takes a job. It sounds better and after all there may be something in the psychological effect. At any rate, about the time the frost begins to come out of the ground, the graduating seniors begin to haunt the office with inquiries regarding the requests for men, from companies, of course, and what is open around rigs and on bull gangs.

Doesn't Hurt to Talk, Anyway

There is some discussion of wages and a good deal of comment on the relative climates of California, Wyoming, Maracaibo, and points east. There is also the ever-burning question regarding foreign service and whether a fresh graduate should put in two or three years on foreign soil now or later or at all. But to advise a man along these lines is about on a par with advising him when or to whom to be married. He will follow his own inclination but condemn his advisor for the results.

The remuneration for service varies enormously, depending a good deal on a man's previous experience and his personal contact with the industry. The actual figures range from $125 to $400 per month, with the average probably around $165. Some men rise rapidly and rate a raise almost every payday while others hang around the $150 mark for time without end. Again it all depends on the man.

The positions filled are as varied as the salaries, or more so. The men go out as laboratory assistants, roustabouts, tool dressers, drillers, stillmen, firemen, production engineers, draftsmen, equipment salesmen, bond salesmen, editors of technical journals, musicians, geologists, and there is personal knowledge of a graduate who spent a year in a refinery and then went back to school to study medicine. He was a good student in engineering and will probably be a good physician.

Personality Is Important

There is a problem that is more serious, especially to graduates who have never worked in commercial plants, than that of position or salary. That problem is one of personality. This elusive quality is easily gained by most men if they merely act naturally. In general, men like people and the feeling is returned if there is no artificial atmosphere to overcome.

Some graduates, especially if in position of some authority, feel that they should live up to some indefinite, nebulous standard and attempt to stand on their dignity. In the oil game this is equivalent to seeking another job. Or they may be over effusive and become equally obnoxious. In either case, they lose the respect of their associates and are most certainly doomed to a change of climate, at least.

Another angle of the problem that is met occasionally is that of the man who parades his knowledge before the world, forgetting that he may be talking to men who helped build Oil City and Smackover. This habit soon wears off when in contact with the rough diamonds of pipe and drill fame. Diamonds in the rough are abrasive and may be used to polish other material than gems.

A good deal has been written and much more spoken regarding the type of training that a petroleum engineer should have. Certain authorities advocate purely theoretical training, apparently meaning purely scientific work, while others seem to believe in trade school policies extensively.

Here's the Place for Discretion

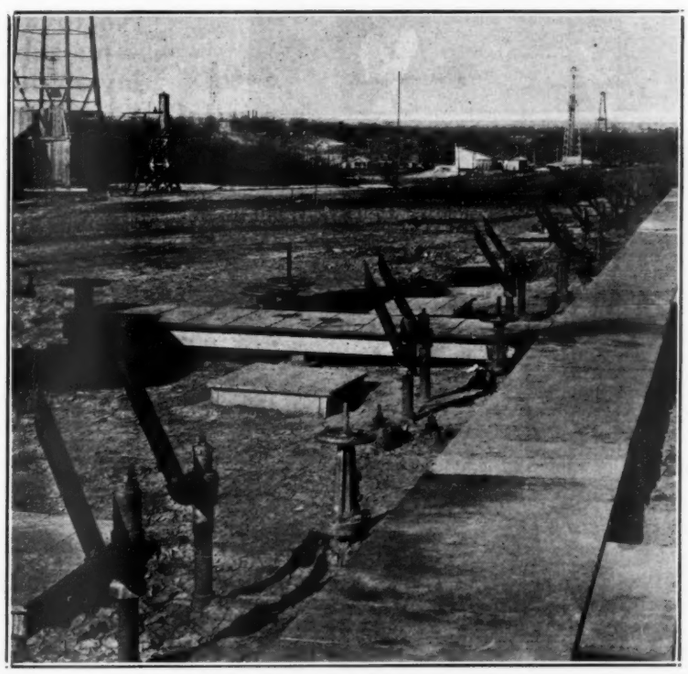
This matter is one where fools may rush in but the man who prefers a harp to a horn will be discreetly noncommittal. Possibly a combination of pure science with some semimanual work would be satisfactory. It does seem that a graduate should be able to place a valve right end to and know the difference between a bull plug and wick packing.

There is one department of the training that is certainly not overstressed in most engineering schools and that covers law, economics and business training. Many engineering graduates can calculate stresses to the nth decimal but have no idea of the effect equipment cost may

(Continued on Page 174)

*Assistant professor of petroleum engineering at the Colorado School of Mines, Golden, Colo.

FIXED BAYONETS? NO, SOMETHING FOR THE POPVALVE

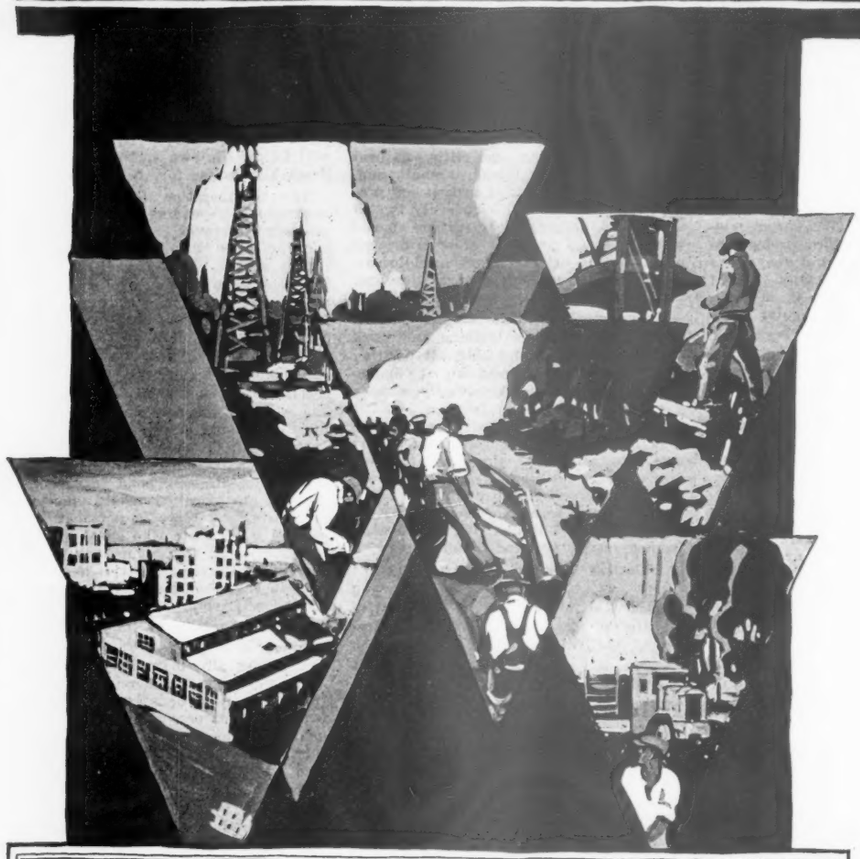


They may look like fixed bayonets or some other such murderous device, but they aren't. They're just an ingenious invention for shunting the exhaust from a popvalve off into the atmosphere, where it won't spoil anybody's looks or disposition.

One of life's unpleasant, often dangerous, experiences in the oil field is for a fellow to be opening or shutting a gate alongside the compressor building, wondering what the missus is going to have for supper tonight, when a popvalve blows off in his face.

The temper-preserving installation pictured here is in use on both the high and low compression cylinders of the Marland flowing plant on the Maines lease in the Mission Field of the Seminole area in Oklahoma. Short pieces of pipe, cut diagonally at one end and fitted with an elbow at the other, do the trick. Other devices to accomplish the same end are seen in the oil fields. Most of them require more pipe than the one shown here.

FROM WELL TO METER



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SUGGESTIONS FOR PROPER CARE OF BELTING FOR TRANSMISSION

By John A. Guffee

We have three classes of flat belting for transmission, leather (fiber), composition (fabric), etc., and hair and there are drives and conditions which require one of these types. However, each can pinch hit for the other.

First, we will discuss flat leather belt for transmission. There are as many qualities of flat leather belt as there are parts of a steer, not taking into consideration the horns and hoof.

There are two recognized tannages, oak and special tan: Oak tannage by the oak bark liquor process, special tannage by chemicals, oil, etc., oak bark liquor procrequiring three or four times the length of time required by the chemical process.

The main object is to belt your machines with a belt that will give you as near 100 per cent production as possible. Belting being the main connecting link between your power and production the best is by far the economical cheapest. We arrive at our horsepower for transmission from belt pulley contact. The most pliable leather than will maintain its original width and adhere to the face of the pulley will come nearer giving you 100 per cent efficiency in the majority of drives. Special curried or soft tan flexible belts have less slippage.

You are purchasing your power by the horsepower, kilowatts, etc., when in reality you are purchasing revolutions and each revolution that is lost between drive and driven is a loss that cannot be reclaimed even as a by-product.

Slippage

Slippage should be known as the "Red Devil" in all belt operated plants, for what this item alone costs the users of flat belting in these United States is something enormous. In fact, if an accurate check could be made of the loss by slippage it would more than offset the realigning of all line and counter shafts and machines that are driven by flat belting by three times. Slippage is to belt life the same as t.b. to a human.

Most of our drives give us the results of the frog in a 20-foot well, hopping 2 feet at one spring and slipping back 1 foot. How long would it take the frog to be out of the well? Better to dig steps every 2 feet so this 1 foot energy won't be wasted or, better still, set your machines for correct centers, alignment, etc., arrange to have pulleys in diameter as near the same as possible even if you have to install counter or jack shafts for proper speeds, for the large majority of times this installation would pay its way through rather than to have such difference in diameter of pulleys. When you have a very short center with small and large pulleys you know you are taking 40 per cent of the life of the belt for slippage. And it does not matter which of the three different classifications of belt that you are using. The overload centrifugal force and weight of belt at high speed with elasticity of the belt is the cause of the excessive slippage.

Belt speed at around 4,500 feet per minute is desirable and advantageous for at this speed it is sufficient to insure good belt efficiency yet at the same time is not so high as to introduce objectionable features. The average commercial pulley is designed for a maximum rim travel of 4,500 feet per minute within safety margin.

Often Abused

Permit me to quote from Carl W. Khorr, mechanical engineer of national repute, in which he says: "There is perhaps no form of drive for transmitting power which has been subjected to so much abuse as the belt drive. It seems that the great majority of people look upon the working of this type of drive as simply the combining of a couple of pulleys, of any diameter which will figure to give the proper speed ratio, with some sort of a belt and it is without question safe to say that as a result there has been a most woeful lack of efficiency by belt drives in general, and failure has been attributed to the belt, or the pulleys, or the kind of belt or pulleys, or to both belt and pulleys, when as a matter of fact none of these individually or in combination were at all to blame.

"While belt drive upon the first thought looks like a very simple thing and as a matter of fact is a simple means of transmitting power, in fact it is very far from being simple in laying out proper installation."

Taking into consideration the proper centers, diameter of pulleys, belt tension, belt speed and the correct width and weights is what is required to make it a simple operation.

Housing room is one of the principal causes for short centers when an additional expense for housing or properly installed counter or jack shafts in the original installation would attain greater production and retain three to four times the life of your belting, also considerably less upkeep on all bearings and machinery involved.

The correct tension on all three kinds of belts can be determined better by the operators. Make sure that the belt is not slipping, running as slack as same will operate with efficiency. Tight belts are bad on both belt and bearings and it has been found that about 65 pounds to the inch in width of doubles is about the correct tension. The bottom belt should always drive, leaving the idle side slack to drop to the pulleys for contact instead of from the pulleys which would be the results of a top side drive.

There are all kinds of drives to be taken into consideration when thinking of flat belting and the hardest that we have found on belts are drives that have serpentine movements.

Care Neglected

The care of belting is sadly neglected in most plants. For good belt contact keep belts clean and pliable. Leather belts can be cleaned by being wiped with a high-grade gasoline dampened cloth and oil dressed with animal oil, which is preferable. In case of emergency you may use vegetable oil, never using mineral oil on leather or composition belting for you know the sad story of mineral oil getting on your belts from the machinery bearings. It must be remembered that the fibers in leather belting require their food to maintain life and flexibility the same as a bearing requires its oil to maintain its service for when the fibers of a leather belt become dry the belt will soon become hard and break.

Composition belts are best cleaned with a solution of warm soda water and gasoline of equal parts. In case of emergency to give composition belt a better pulley grip it has been found that castor oil in very small quantities has given relief. Never use resin or resin compound for belt dressing.

Hair belts to be cleaned can be submerged in high-grade gasoline for a few hours and redressed with regular hair belt dressing.

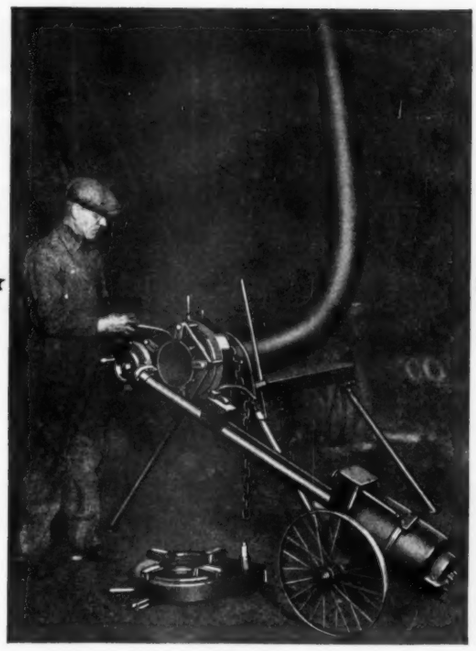
Co-ordination of ideas on kindred or alike problems will result in greater production and saving in overhead. We all know that "Old Man Overhead" is a gangster who puts out of operation the manufacturing plants.

DETERMINING VALUE OF PIPE COATINGS

(Continued from Page 33)

paint after which it is passed over a vat of asphalt and receives a spiral wrapping of a specially prepared asphalt-saturated rag-felt which passes through the asphalt before it is applied to the pipe.

Only one specimen each of coatings Nos. 1, 2 and 5 was available. In addition to the test, the results of which are given in Table 2 other somewhat different tests are being made on coatings Nos. 3, 4 and 6. The resistances found in the other tests are of the same order of magnitude as those given in Table 2 and the changes are similar. On this



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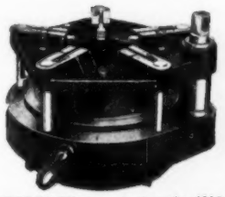
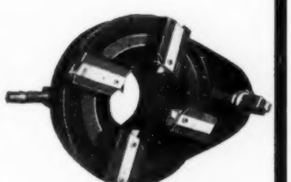


"TOLEDO" No. 3 threads 4½" to 8" pipe quickly and in any position.

You will find that "TOLEDOS," as a part of your equipment, will soon pay for themselves by the time and labor they will save. We will be glad to show you how "TOLEDOS" will help solve your piping jobs.



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Oil and Gas Journal 5-2-29

account it is felt that while the number of specimens of any one material is smaller than is desirable, the similarity of results indicate that the data are representative of results of tests by this method.

Report on Resistance

The data in Table 2 show that all of the coatings under test with exception of No. 3 and No. 6 had a high initial resistance and that all of the coatings absorb moisture and decrease in resistance after exposure to moist soil for a few weeks. All of the coatings except Nos. 2 and 3 still have a considerable resistance. Whether this resistance is sufficient to prevent corrosion will be determined by examining the pipe after the experiment has continued longer.

It will be noted that there is in several instances a slight increase in resistance toward the end of the test. This may be caused by a change in the resistance of the soil surrounding the pipe or to the formation of rust beneath the coating, since rust has a comparatively high resistance. Since the resistance of the coating between pipe and ground is inversely proportional to the length of the pipe it is easily seen that the resistance between a long pipe line and the earth will be very low even when the best of these coatings is used.

Not Comparison of Coatings

The data are offered not for the purpose of comparing the relative merits of the coatings are preventives of corrosion but to show that these types of coatings applied under favorable conditions absorb moisture and decrease in electrical resistance rapidly after exposure to moist earth.

Since coatings have been in use for 50 years it might seem that there existed a vast fund of data based on actual experience. In reality the available, worthwhile data are in most cases limited and incomplete. In a few cases it may be possible to uncover the additional facts necessary for interpretation of the data now available but in many instances this is not possible.

To be of substantial value, data on a protective coating should include the physical and chemical characteristics of the coating, the date and method of application, the date of failure or condition on specified dates and the type of exposure. To determine the economic value of the coating, we must know the cost of application, the useful life of the coating and the probable life of the pipe if it had been installed without any protection.

In relatively few instances can all of this information be secured. Many coatings have been purchased and applied with few specifications other than the trade name of the coating. The composition of some of these proprietary coatings is changed from time to time as improvements in the art or the available supply of raw materials dictate. Methods of application of coatings have not been standardized and it is often difficult to determine whether a failure is caused by inherent properties of the material, by faulty application or by mechanical injury. Usually a considerable time elapses between the actual failure of the coating and the discovery of the failure. Frequently the life of the line without the coating is a matter of conjecture. It is a mistake therefore to expect too much from the study of coatings already applied.

Concerning Inspections

In recent years some organizations have kept rather detailed records of their coating activities and where such records are available the determination of the condition of their coatings after a known period and the identification of the condition of exposure would prove profitable. Several such determinations have been undertaken usually by inspection of the surface of the coating or the condition of the pipe beneath the coating. Such inspections are frequently unsatisfactory especially in cases where the coating has been exposed for a short period and the evidence of corrosion of the pipe surface is indefinite.

The uncertainty of inspections is illustrated by Walker and Hickson[3] in a table showing the ratings of A.S.T.M. paint panels by three qualified inspectors at the end of two periods. With regard to the table, they say:

"Not only does this table show wide variation of opinion among competent observers examining the same panels but it will be noted that all of the observers who took part in both inspections rated one paint higher and one of the three rated two other paints higher in 1911 than in 1910." The same divergence of opinion occurred in the 1926 inspection of Bureau of Standards specimens of protective coatings for pipes.

At this inspection, occasionally two inspectors examining the same specimen at the same time could not or would not agree as to its condition. How much more difficult it must be to correctly rate a coating exposed or partially exposed in a narrow trench where facilities for cleaning the coating are limited and the illumination on one side of the pipe is poor. It was partly this difficulty in determining beyond question the condition of coatings that induced the Bureau of Standards to remove no coated specimens in 1928. It seemed better to postpone the removal of the remaining specimens of pipe coatings until a method of determining their condition could be developed. In order to develop such a method samples of several types of coatings have been secured and some of their properties studied. Information as to their behavior in the field has been obtained but the field data are inadequate and conflicting, indicating either that the coatings are suitable for some soil conditions and not adapted to others, that in some instances they were improperly applied or that in some cases the condition of the coating was not correctly determined.

Absorption of Water

Returning to the proposition that in the absence of positive evidence that a moisture-proof coating is not necessary, the coating should be waterproof, we have simple means of determining in the field the extent to which the coating as a whole or any specified section thereof meets the specification as to the absorption of water.

If moisture has not reached the pipe after it has laid in the trench a specified period, for that period it is satisfactory regardless of brittleness, thickness, adhesion or other properties, since these are specified only in order to secure a continuous moisture-proof coating on the pipe. Whether moisture has penetrated the coating and, to a limited degree, the extent to which moisture has penetrated can be determined by measuring the resistance of the coating. For the line as a whole, this may be done by measuring the electrical resistance between a point on the pipe exposed for the purposes of test and a remote ground. In many instances this measurement will indicate a very low resistance on account of a few imperfectly insulated points on the line. It will usually be found necessary to study a small portion of the coating at a time, selecting only a few sections which appear to be representative. A modification of one of the methods of testing paint films proposed by Walker and Hickson[4] seems suitable for this purpose. A sheet of soft rubber approximately one-fourth inch in thickness and of any suitable area has cut in it a series of three-eighths inch holes 1 inch apart as is shown in Figure 2. This rubber pad is given a light coating of petrolatum on each side and strapped snugly over the surface of the coating to be studied. It is essential that the surface of the coating shall be clean and free from surface moisture. The final moisture film may be removed by means of a rag dipped in alcohol if necessary. The holes in the pad are then carefully packed with wet clay, care being taken to keep the surface of the rubber free from clay.

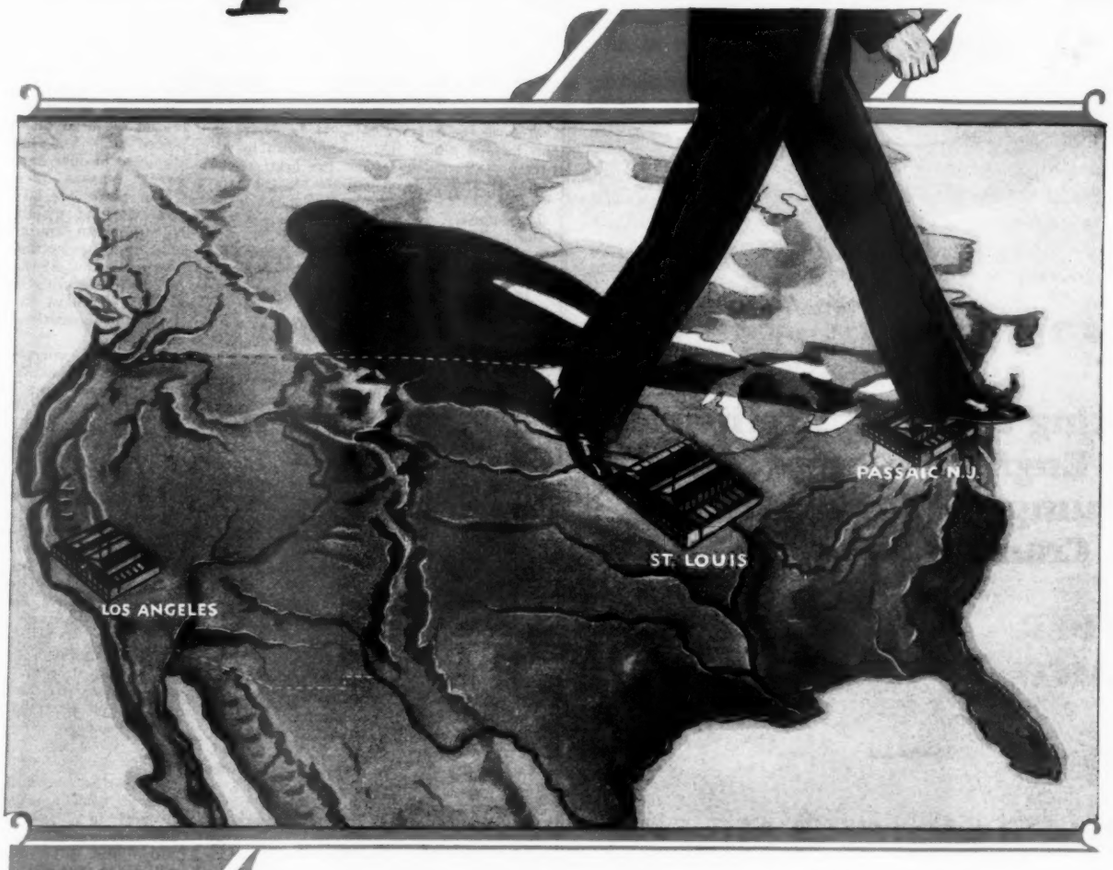
Test Described

One pole of a dry cell is attached to a bare spot on the pipe, the other to a high resistance galvanometer or milliammeter. To the other terminal of the galvanometer is attached a wire, the free end of which is placed successively in

[3]Bureau of Standards Journal of Research, Vol. 1, No. 1, p. 8.

[4]Bureau of Standards Journal of Research, Vol. 1, p. 1.

Step Forward



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Texas Company . . . (Power House at Port Arthur Refinery)
Detroit Edison Co. . . . (Delray and Connors Creek Stations)
Pennsylvania Hotel . . . . . New York City
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DETROIT

contact with the columns of clay in the rubber pad. Whenever the earth column is in contact with a pinhole or crack in the coating the electrical circuit is completed and the galvanometer shows a deflection. The ratio of the clay columns showing deflections to the total number tested gives the portion of the surface containing points of failure. This should be expressed as a percentage. It is convenient, therefore, to have the pad contain 100, 50 or 25 holes so that the percentage is found by multiplying the number of deflections by 1, 2 or 4. The sensitiveness of the method depends upon the current sensitivity of the galvanometer and the voltage used. If the sensitivity is too great the readings may be affected by current leakage over the surface of the pad; if too small only large pinholes and cracks will be detected. When the resistance of the coating is high, this resistance controls the current while, with a low-resistance coating, the current may be controlled by the resistance of the instrument. It is desirable to have a single instrument suitable for testing all coatings from the best to the poorest and it is also desirable that the correction for instrument resistance be a constant. An instrument meeting the above specifications was devised by providing a special resistance box for use with a microammeter already at hand. The principle involved is applicable to other instruments. Figure 3 shows the circuit used. The combination has full-scale ranges of 1,000, 100, 10 and 1 micro ampere. The instrument resistance for all scales is 2,090 ohms, the resistance of the moving element of the microammeter. The range is such that if an ordinary dry cell is used the instrument, when set on its highest range, will not be overloaded even if the resistance of the coating is zero while on its most sensitive scale it will detect a leak through 100,000,000 ohms. The range of the instrument is therefore ample. Laboratory experiments with the above described method of testing indicate it is suitable for studying coatings differing widely in electrical resistance. Additional work must be done to determine what resistance is essential for a satisfactory coating. This problem may require a considerable time for its solution but it does not appear to be difficult.

Methods for determining the corrosiveness of soils are also being developed. It appears therefore that means for systematically studying protective coatings in the field by ascertaining the condition of coatings in service and determining the soil conditions to which they are exposed can be made available. Only when such studies have been made will the intelligent selection of a protective coating be possible.

MURPHEY HEAD OF SAFETY WORK IN MID-CONTINENT

Mid-Continent safety directors on April 20 effected a permanent organization. While representatives from practically all of the Mid-Continent oil companies have held meetings periodically for several years past, the election of officers and the formulation of a constitution will place this group in a much better position to exchange ideas and expand the work.

E. D. Murphey, safety director for the Mid-Continent Petroleum Corp., was elected president and R. L. Banister, safety director for the Gypsy Oil Co., was named vice president. J. C. Young, personal and insurance director for the Tidal Oil Co., was made secretary.

These officers were also asked to draw up a constitution and it is the aim of the organization, as explained by Don Wallace, safety director for the Mid-Continent Oil & Gas Association, to expand the new organization so as to establish chapters in Houston, Tex.; Dallas, Tex., and Shreveport, La. Safety and personal work in all branches of the industry, including refining, production, pipe line, gasoline plants and marketing will be discussed in the scheduled meetings and the list of 73 members at present is expected to be greatly increased.

TUBULAR PRODUCTION IS SOMEWHAT HEAVIER

By B. E. V. Luty

PITTSBURGH, Pa., Apr. 29.—The steel market has become rather a colorless affair as it presents no fresh good news and has not started developing any bad news. A distinction is, of course, made between the market, from the viewpoint of its presenting news, and the actual trade. The trade is very active. Production is at the high rate reached by the middle of March, more than 10 per cent above the highest rate in any previous year, and there is insistent demand for deliveries. The steel called for is, however, largely steel already purchased.

Right along the most active finished steel lines have been bars, sheets and strips, while tubular material has been one of the dullest lines. Tubular goods production is somewhat heavier now, by reason of large line pipe orders recently placed and by reason of demand for standard or merchant pipe continuing to have a seasonal increase.

Tin plate has been growing more active, working up to the seasonal peak, as shipments are generally heaviest in May and sometimes substantially as heavy in June. At the beginning of March the tin plate mills were operating at an average of about 85 per cent while last week the operation was fully 95 per cent.

Pipe mill operations are somewhat higher, at about 55 per cent against about 50 per cent in the fore part of April. Seamless tube mills remain at about 70 per cent, and the tubular goods industry as a whole may be set at about 60 per cent.

Semifinished steel is quite scarce, but this does not mean as much as might be thought, for there is the point that it chances the sheet and strip mills, which are the chief buyers of semifinished steel, are particularly busy among the steel finishing lines. There are some steel plants that could make more steel than they need for their own finishing, but they do not have the proper equipment for putting the steel into the semifinished forms desired or their freight rates are too high. An indication of the situation is the fact that in the past week two sales have been made of ingots, or crude steel, the first ingot transactions recalled since 1922.

With the finishing departments running at various rates, from 95 per cent or more in sheets, strips and tin plate, down to rates below 70 per cent for wire mills, pipe mills and some plate mills, the production of steel itself is substantially at capacity. The Steel Corp. reached a 100 per cent operation in steel ingot production at one time last week and may have maintained the rate throughout the week, while the largest independent, Bethlehem, reported at 100 per cent operation at one time. Steel production in March was at 13 per cent above last year's highest rate and the chances preponderate that April will show a slightly higher daily average rate than March. The regular seasonal decrease is delayed beyond the usual time and predictions are that it will be small when it does come. Making an estimate by taking the April rate as equal to that of March, with May production 5 per cent under and June production 10 per cent under the March rate, the half year's total of steel ingot production will be about 28,550,000 gross tons, or 15 per cent above the first half of last year and 11 per cent above the second half of last year, both of those halt years having been record high in their time.

Finished steel prices are substantially stationary. Recently there have been advances of $1 a ton in bars and $2 a ton in hot rolled strips, announced last February but only fully effective of late. An advance in sheets, outside of automobile sheets, was announced at the same time but even now is not entirely effective. Some mills are obtaining the advanced prices but some mills are shading. It is claimed the lower priced business is only a small part of the total turnover.

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with the OIL INDUSTRY since its infancy

In the early days of the Mid-Continent Field the oil business was considered by bankers as entirely speculative. Such an attitude brought about the organization of The Exchange National Bank of Tulsa by a group of men who visioned oil as a basic industry possible of operation on a scientific and business like basis.

On those principles The Exchange National Bank had its foundation and it has been the strong financial guardian of the oil business ever since.

No matter of credit rating within the oil fields is beyond the scope of this institution. Its personnel is composed not only of financiers, but of men who are practical oil operators themselves, capable of weighing the problems of the industry in the balance of their own personal experience. Companies, properties and production are matters of every-day knowledge to this organization. Any matter in petroleum finance requiring experienced advice is well trusted to The Exchange Banks of Tulsa.

Capital, Surplus and Undivided Profits Exceed $5,000,000
Resources Exceed $64,000,000

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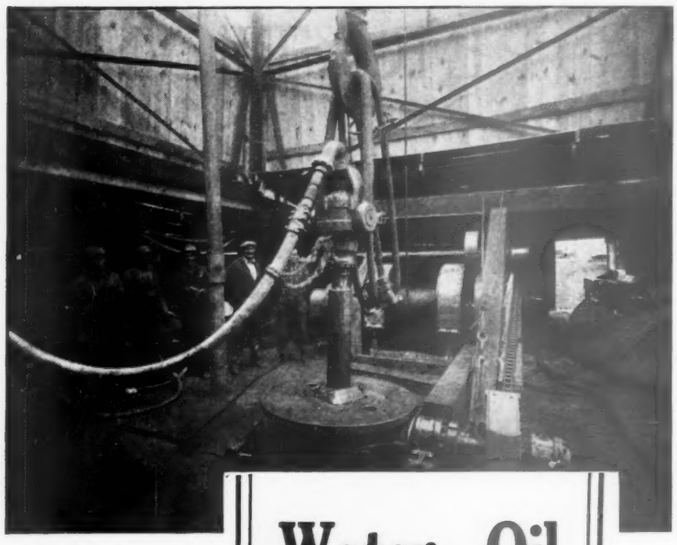

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FRICTION LINING

BULK OF CARBON BLACK MADE FROM RESIDUE GAS

(Continued from Page 78)

of it is made from gas which cannot be conserved in the hope of a future market. Even today there is far more gas being blown into the air from oil wells which is admirably suited for the manufacture of carbon black than is actually being used in its manufacture. Much of this gas is collected at central points convenient to a market, and yet the market for carbon black is not adequate to justify the erection of carbon black plants to utilize the gas thus wasting. The natural gasoline plants of Texas alone are at present discharging natural gas into the air at the rate of over 400,000,000 cubic feet per day, which is a flow approximately equal to the total rate of consumption of natural gas for carbon black throughout the country. The manufacture of carbon black from gas such as this is an act of conservation of the highest order. With such a vast surplus of gas available, we can look forward to an adequate supply of carbon black for all purposes for a good many years.

PROGRESS IN LAYING TEXAS-EMPIRE LINE

Construction work on Texas-Empire Pipe Line Co.'s 12-inch oil pipe line from Oklahoma to the Chicago industrial district has been progressing very slowly on account of the exceedingly rainy and wet weather which prevails throughout the territory traversed by the 624 miles of main line and the 200 miles of branch lines.

Approximately 500 men are engaged on the construction work, and with the opening of favorable construction weather more will be added to rush the work.

This force is divided into 12 main-line gangs and two river crossing gangs. Two main line gangs are now engaged on the 122-mile Oklahoma section from Cushing to a point near Chetopa, Kans., which contract was let to Charles F. Rayle of Wichita. The Kansas-Western Missouri section from Chetopa to Eldorado Springs, Mo., an 86-mile section, construction work in charge of Kelley-Dempsey of Tulsa, also has two main line gangs. The third, a 116-mile section from Eldorado Springs, Mo., to Wilmington, Ill., was let to Williams Brothers, Tulsa, who have eight main-line gangs and two river-crossing gangs on the job. The crossing of the Illinois River has been completed, but owing to rainy weather and high water a test of this crossing has not been possible. The Heyworth-Lawrenceville section, a 130-mile length has been contracted to Henry L. Lemons of Pampa, Tex. However, work has not commenced on this as yet.

Robert Strong, formerly of the Empire engineering department, is in general charge of supervision of all construction work, under the general direction of F. A. Stivers, general superintendent of the Texas-Empire Pipe Line Co. of Tulsa. The section or division supervisors are as follows: Oklahoma section, F. E. Spanley; Kansas-Western Missouri section, A. G. Love; Eldorado Springs to Mississippi River (including crossing), M. J. Cook; Mississippi River to Wilmington, Ill., J. H. O'Brien; Wilmington to East Chicago and Lockport sections, J. H. O'Brien; Heyworth to Lawrenceville section, J. H. O'Brien.

All of the main line construction is of electrically welded A. O. Smith bell and spigot 12-inch pipe from Cushing, Okla., to Wilmington, Ill., excepting the river crossings which are of bell and spigot seamless construction. From Wilmington to East Chicago, Indiana, the line will be of 10-inch diameter and from Wilmington to Lockport, where the Texas refinery is located the line will be of 8-inch diameter. Another branch line, 130 miles in length, of seamless construction and victaulic couplings, 8 inches in diameter, will be constructed from the main line at Heyworth, Ill., to Lawrenceville, Ind., serving the Indian Refining Co.

In addition to the Illinois River which has already been crossed, the principal river crossings to be made are the Mississippi, near Hannibal, Mo., the Missouri River between Sedalia and Jefferson City, Mo., and the Arkansas River near Tulsa.

Nine pump stations, eight of oil engine type and one electric motor driven, with a total rated horsepower of 9,030 and 40,000 bbls. daily capacity will be erected at proper intervals along the line, which it is estimated will be completed and tested about July 15.

NEW ZEALAND DRILLED 30 TESTS LAST YEAR

CHATHAM, Ontario, Apr. 27.—A recent letter from New Zealand reports increasing activity in drilling for oil there. In the past year nearly 30 tests have been drilled, though only a few can be termed completed.

Much of this renewed interest has resulted from a new theory of a supposed oil belt traversing Burmah and the East Indies, taking a wide sweep through New Guinea and thence passing through New Zealand and down to the Antarctic. The Antarctic volcanoes, Mounts Erebus and Terror, are, it is claimed, associated with this geological belt, and its existence is thought to favor prospects for oil in New Zealand as against Australia, where widespread drilling has been practically resultless.

In New Zealand the best known of the recent tests are the Tarata and Motorua wells. The Tarata is down 5,010 feet and the Motorua is drilling at 4,360 feet. Both have got oil shows but neither has got oil in commercial quantities. The Motorua oil is of good quality, but the production is small and intermittent, the condition being somewhat similar to that encountered in the early days of the Turner Valley Field in western Canada.

Some time ago a blowout occurred at Motorua, a gas that smelled strongly of petroleum coming forth in great quantities and enveloping the drilling plant with a dense, black cloud. Recently a small but fairly steady flow was struck in this test, which has given encouragement to further drilling.

IMPERIAL OIL AIDS HOSPITAL

CHATHAM, Ontario, Apr. 27. — Announcement has been made that Imperial Oil, Ltd., through President C. O. Stillman will donate $8,000 to equip an X-ray laboratory at the Sarnia, Ontario, General Hospital. Mrs. W. J. Hanna, widow of a former president of Imperial, Oil, Ltd., is donating $10,000 for a children's pavilion at the same institution.

SUMMARY OF STATEMENTS MADE APRIL 10, 1929, RELATING TO BUSINESS OF VARIOUS PIPE LINES FOR MONTH ENDING MARCH 31, 1929

	Gross stocks	Runs from wells	Other receipts	Regular deliveries	Other deliveries
Nat. Transit	731,188.54	181,078.06	856,229.04	472,740.05	619,161.69
S. W. Pa. P. L.	430,880.16	102,780.57	763,158.38	324,198.08	585,968.62
Eureka P. L.	1,227,449.21	361,950.53	312,448.96	227,945.27	388,902.66
Buckeye P. L. (Macksburg)	496,081.38	328,651.40	31,443.05	178,851.61	225,930.00
Buckeye P. L. (Lima, etc.)	2,015,652.51	106,736.48	1,978,273.68	1,398,450.19	799,260.99
Buckeye P. L. (Cleveland)	53,245.56	11,850.63	109,620.52	2,675.09	106,495.64
Indiana P. L.	517,499.27	5,695.98	2,818,105.55	1,426,742.83	905,473.07
Cumberland P. L.	568,233.96	188,917.24	249.76	202,271.56	.....
Southern P. L.	538,367.15	.....	214,940.43	.....	122,629.75
N. Y. Transit	283,675.14	30,819.36	170,508.94	207,577.62	.....
Northern P. L.	377,796.87	.....	419,072.16	185,794.76	256,341.96
Tuscarora Oil	296,936.59	.....	.....	.....	582,662.68
Total March 31	7,537,006.34	1,318,480.25	7,174,047.47	4,627,247.06	4,592,827.06
Total February 28	7,324,169.84	1,124,169.30	6,674,987.82	3,971,209.76	4,505,669.40
Difference	212,836.50	194,310.95	499,059.65	656,037.30	87,157.66

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

The Texas Company's No. 1 Bryan, SE NE SW Sec. 9-6-8e ..... Rig on ground.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ..... Shut down 2,020 ft.

KAY COUNTY

Wentz Oil Corp.'s No. 1-A Ward, C NE SE SW Sec. 32-27-1e ..... Drlg. 4,003 ft.

KINGFISHER COUNTY

McKenna & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w ..... Shut down 4,895 ft.

KIOWA COUNTY

S. H. Christian's No. 1 Stone, SE cor. Sec. 18-7-18w.. Rig on ground.
C. B. Cloyes' No. 1 Brazill, SW cor. NE Sec. 34-7-17w.. Plugging back to 918 ft.
Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w.. Drlg. 975 ft.
McWharter and others' No. 1 Sherwood, CWL NW NE Sec. 2-5-17w ..... Shut down 487 ft.

LATTIMER COUNTY

Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18 ..... Underreaming 6-in. csg. 3,520 ft.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 ..... Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6 ..... Drlg. 975 ft.
Wheeler & Mote's No. 1 Kemmer, NW cor. NE SW Sec. 2-16-5 ..... Drlg. 3,590 ft.
Slusher's No. 1 Barnes, NW cor. Sec. 22-13-19e.... Machine.

LOGAN COUNTY

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w.. Cleaning out 3,970 ft.
Washoma Oil Co.'s No. 1 Phillips, C NW SW Sec. 13-19-10w ..... Rig on ground.

McCLAIN COUNTY

Tidal Oil Co.'s No. 1 Davis, C SE SE Sec. 31-5-2e.. Drlg. 3,999 ft; rigging up standard tools.

McINTOSH COUNTY

Spring Valley Oil Co.'s No. 1 Carr, SE cor. NE NW Sec. 16-10-13e ..... Rig.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Drlg. 5,482 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18 ..... Rig on ground.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show oil 1,235 ft.; shut down.
Earl and others' No. 1 Turner, C NE NE Sec. 23-20-14w.. Rig.
Wilson and others' No. 1 Unknown, NE cor. NE Sec. 4-23-16w ..... Shut down 510 ft.
Sinclair Oil & Gas Co.'s No. 1 Showalter, C SW SW Sec. 33-27n-16w ..... Rig.

MUSKOGEE COUNTY

Tulkogee Oil Co.'s No. 1 Thompson, NW NE Sec. 31-15-20e ..... Machine.
Slusher's No. 1 Barnes, NE cor. Sec. 22-13-19e ..... Machine.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 775 ft.
Colton & Lester's No. 1 Parker, C NW SW Sec. 31-12-19.. Total depth 1,737 ft.; plugging back to 700 ft.

OKFUSKEE COUNTY

Superior and others' No. 1 Carolina, SE cor. Sec. 6-11-7e ..... Location.
T. B. Slick Inc.'s No. 1 Berry, SE cor. NE SE Sec. 21-11-7 ..... Drlg. 4,640 ft.
Erwin and others' No. 1 Patterson, NW cor. SE Sec. 15-13-9 ..... Location.
Prairie O. & G. Co.'s No. 1 Palmer, NW cor. NW NE Sec. 2-11-9 ..... Drlg. 2,709 ft.

OKLAHOMA COUNTY

Mid-Kansas' No. 1 Trosper, NE NW Sec. 19-12-1w.. Location.
Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w.. Shut down 5,130 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Granite 7,167-7,180 ft.; shut down.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE Sec. 10-11-3w ..... Shut down 4,750 ft.

PITTSBURG COUNTY

Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12.. Fishing 1,800 ft.

PONTOTOC COUNTY

Denver P. & R. Co.'s No. 1 Roberts, SE cor. NE NE Sec. 36-5-4 ..... Total depth 2,853 ft.; plugging back to 2,816 ft.

POTTAWATOMIE COUNTY

T. B. Slick's No. 1 Sailor, SE cor. NW NW Sec. 12-8-3.. Drlg. 5,441 ft.
Mid-Continent Petroleum Corp.'s No. 1 James, SE cor. SE Sec. 22-5-3 ..... Abandoned 3,492 ft.
Simms Oil Co.'s No. 1 Lester, SE cor. NE NE Sec. 19-6-4 ..... Total depth 3,699 ft.; 3,060 bbls.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 William, C SW Sec. 23-12-24w.. Location.

SEMINOLE COUNTY

Indian Territory Illuminating Oil Co.'s No. 1 Peterson, SE SW NW Sec. 24-7-5e ..... Drlg. 3,854 ft.; rigging up standard tools.
Prairie's No. 1 Patton, NW NE Sec. 18-6-8e ..... Location.
Indian Territory Illuminating Oil Co.'s No. 1 Factor, SW NE SE Sec. 3-5-7e ..... Location.
Continental Oil Co.'s No. 1 Proctor, SE cor. NE NE Sec. 5-8-8e ..... Drlg. 1,300 ft.
Gypsy Oil Co.'s No. 1 Andrews, NE SE NW Sec. 27-10-7 ..... Drlg. 4,520 ft.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... Drlg. 3,525 ft.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW Sec. 11-6-5 ..... Rigging up rotary.
Marland Oil Co.'s No. 1 Strothers, NW cor. SE NE Sec. 5-10-7 ..... Wilcox 4,925-42 ft.; hole full water; P.B. to 4,595 ft. to list.; shot 60 qts.; no show; shut down.
Magnolia Pet. Co.'s No. 1 Harjo, NE cor. SE Sec. 34-6-7.. Drlg. 3,716 ft.
T. B. Slick and others' No. 1 Davis, NE cor. NE Sec. 26-6-6 ..... Straightreaming 4,303-4,357 ft.
McCulloch Oil Co.'s No. 1 Powell, NW cor. NW Sec. 11-6-5 ..... Rig.

SEQUOYAH COUNTY

Cooper & Badger's No. 1 Young, NW cor. NE NE Sec. 7-12-20 ..... Shut down 50 ft.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Shut down 1,105 ft.
Buffington and others' No. 1 Melcher, C SW NW Sec. 31-12-24 ..... Shut down 3,000 ft.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rigged up and shut down.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Drlg. 5,003 ft.
Sinclair Oil & Gas Co.'s No. 1 Showalter, C SW SW Sec. 33-27-16w ..... Rig and tools.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 22-23-17w ..... Drlg. 720 ft.
Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w ..... Rig blown down 3,025 ft.; shut down.
Prairie Oil & Gas Co. and others' No. 1 James, NE cor. NW Sec. 23-23-17w ..... Drlg. 3,062 ft.

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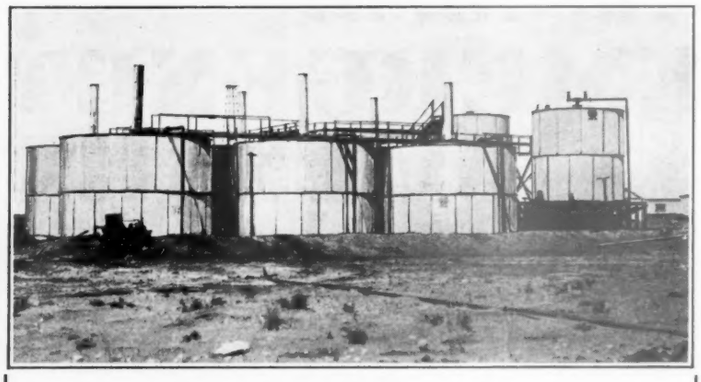

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MADE OF KEYSTONE COPPER STEEL

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE COPPER STEEL

MALONEY TANKS

Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w..Shut down 3,612 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.
Wilson and others' No. 1 Unknown, NE cor. SW Sec. 4-23-16w ..... Shut down 1,240 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Wapanucka Oil Co.'s No. 1 Banks, CWL SE SE Sec. 28-2s-9 ..... Shut down 1,530 ft.

BRYAN COUNTY

Lambert and others' No. 1 Mermann, CEL SE NE NE Sec. 27-6s-9 ..... Shut down 1,925 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Shut down 1,390 ft.

CARTER COUNTY

Avon-Dickey's No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Shut down 420 ft.
Humble Oil & Ref. Co.'s No. 1 Chapman, C SW NW NW Sec. 1-4-3 ..... Abandoned 1,502 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19 ..... Shut down 1,346 ft.

COTTON COUNTY

Everetts and others' No. 1 Hall, SE NW Sec. 36-4-13w..Drlg. 2,478 ft.
Kirbow and others' No. 1 Brown, NE SW Sec. 35-3-12w..Rig.
Perkins & Callum's No. 1 Tucker, NW NE Sec. 11-3-10w ..... Shut down 2,513 ft.
Pewlin Pet. Co.'s No. 1 King, SW SE Sec. 22-3-9w..Drlg. 520 ft.
Amerada Pet. Corp.'s No. 1 Dulaney, SE cor. NW NW Sec. 31-4-9w ..... Drlg. 1,600 ft.
Consolidated Oil Co.'s No. 1 Indian Land, NE SW Sec. 11-3-12w ..... Drlg. 2,035 ft.
Pierce & Brown's No. 1 Hertzler, NW cor. NW Sec. 31-2-12w ..... Shut down 2,716 ft.
Shasta Oil Co.'s No. 1 Pah-pe-chi, NE cor. NE Sec. 34-1s-11w ..... Shut down 2,602 ft.
White and others' No. 1 Woodruff, NW NE SE Sec. 18-3-11w ..... Drlg. 1,710 ft.

JEFFERSON COUNTY

Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7..Spudded and shut down 350 ft.
Pierce & Brown's No. 1 School Land, SE NE NW Sec. 16-5-8w ..... Location.

JOHNSTON COUNTY

Humble O. & R. Co.'s No. 1 Colbert, Sec. 6-4s-4e, SE SW..Rig on ground.
Smith & Knisely's No. 1 Lane, E half Sec. 29-1-7..Drlg. 1,690 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ..... Shut down for casing 405 ft.

MARSHALL COUNTY

Nelf and others' No. 1 Strothers, C SW NE NE ..... Drlg. 175 ft.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. Sec. 17-1-2e..500,000 ft. gas and show of oil 2,185-2,228 ft.; drlg. 2,230 ft.

STEPHENS COUNTY

Ellis Drilling Co.'s No. 1 Yates, SW NE Sec. 4-3-7w..Rig.

TILLMAN COUNTY

Cochran & Ridgway's No. 1 Barnes, C NW NE..... Cellar.
Burt Lambert and others' No. 1 Zivlig, C NW Sec. 25-1-18w ..... Rig.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ..... Shut down 2,535 ft.
Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w ..... Drlg. 705 ft.

OKLAHOMA PANHANDLE

Magnolia Pet. Co.'s No. 1 School, C SE NE Sec. 22-5-5..Drlg. 1,715 ft.
Skaer's No. 1 Hitch, NW cor. Sec. 25-1-15e ..... Rig.
Three Way Oil Co.'s No. 1 Cane, SW NW Sec. 11-1-18e..Shut down 3,350 ft.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 45)

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ..... Rigged up and shut down.

JACKSON COUNTY

Garvin & Morton's No. 1 Lutes, SW cor. NW NW Sec. 27-7-15 ..... Drlg. 2,496 ft.

KINGMAN COUNTY

Gypsy Oil Co.'s No. 1 Kincaid, NE cor. NW, Sec. 18-29-5w ..... Rig on ground.

LANE COUNTY

Robinson's No. 1 Dickerson, Sec. 11-18-27w ..... Shut down 2,650 ft.
Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ..... Spudded and shut down.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE NW Sec. 10-3-7e..... Drlg. 1,320 ft.
Empire O. & R. Co.'s No. 1 Scally, SW NE NE Sec. 28-19-2e ..... Drlg. 464 ft.

MARION COUNTY

T. C. Johnson's No. 1 Doltweler, SW cor. NE NW Sec. 3-18-4e ..... Drlg. 1,550 ft.
Hartman & Skaer and White Eagle's No. 1 Kline, NE NW Sec. 28-18-3e ..... Shut down 2,270 ft.
Connell & Prairie's No. 1 Zirak, SE cor. SW Sec. 3-18-3e ..... Drlg. 2,165 ft.
General Utilities Co.'s No. 1 Burkholder, Sec. 18-19-3e... Drlg. 2,000 ft.
General Utilities Co.'s No. 1 Propp, NE cor. SE SW Sec. 8-19-4e ..... Rig.
Helmerich & Payne's No. 1 Rosen, NE cor. SE SW Sec. 25-21-2w ..... Drlg. 745 ft.
J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 ..... Rig.
A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2..Drlg. 2,755 ft.
Frank L. Moore's No. 1 Miller, NE cor. NE Sec. 26-19-1..Drlg. 1,385 ft.

McPHERSON COUNTY

Morrison & Shydell's No. 1 Shindberg, SE cor. NW Sec. 18-19-2w ..... 120 ft.; abandoned.
McPherson O. & G. Co.'s No. 1 Rasmusson, SW cor. Sec. 8-18-3w ..... Spudding; shut down.
Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w ..... Drlg. 3,301-04 ft.; show of oil.
McPherson Gas Co.'s No. 1 Reitz, NW cor. SE SW Sec. 1-20-2w ..... Drlg. 1,055 ft.
Lariaux et al's No. 1 Martinson, NE cor. Sec. 9-19-3w...Rig; abandoned.
Mid-Kansas Oil & Gas Co.'s No. 1 Yoder, C NW SW Sec. 8-20-4w ..... Drlg. 3,660 ft.
J. H. Tatlock's No. 1 Hayer, C SW NE Sec. 32-20-1w....Drlg. 780 ft.
Marland Prod. Co.'s No. 1 Wilkering, C SW SW Sec. 9-21-1w ..... Shut down 3,440-45 ft; H.F.W.

MORRIS COUNTY

Hiatt et al's No. 1 Blythe, NW NE Sec. 35-15-5e..... Shut down 1,530 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 25-18-21w..... Drlg. 3740-95 ft.; H. F. W.

NORTON COUNTY

Southwestern Petroleum Co.'s No. 1 Montague, NE SW SW Sec. 28-1-22w ..... Shut down 1,480 ft.

OSBORNE COUNTY

Empire O. & R. Co.'s No. 1 Crest, SE NE Sec. 30-9-14w ..... Drlg. 3,195 ft.
Trees Oil Co.'s No. 1 Payenter, NE cor. SE SE Sec. 22-8-15w ..... Drlg. 650 ft.
S. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w..Drlg. 3,063-65 ft.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w..Drlg. 3,518 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w..Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonian-British American's No. 1 Neilman, C SW SW Sec. 34-2-19w ..... Shut down 1,847 ft.
Watsonia Oil Co.'s No. 1 Marklein, NE cor. SW Sec. 21-3-19w ..... Shut down 3,920 ft.
British American Oil Co.'s No. 1 Weinman, C SW SW Sec. 34-2-19w ..... Drlg. 1,847 ft.

PRATT COUNTY

O'Haver & Jones' No. 1 Lunt, C SW NW Sec. 15-28-14w.. Drlg. 350 ft.
Empire O. & R. Co.'s No. 1 Henderson, SW cor. Sec. 35-25-4w ..... Drlg. 420 ft.

RENO COUNTY

Perry et al's No. 1 Oswald, NE cor. NE SE Sec. 30-22-5w ..... Fishing 2,340 ft.
Austin Drilling Co.'s No. 1 Strickley, SW cor. SW Sec. 17-26-5w ..... Drlg. 1,727 ft.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w ..... Cellar.
Higgins & Stembubble's No. 1 Shurr, NE cor. SW Sec. 21-20-10w ..... Shut down 1,820 ft.

RILEY COUNTY

Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e.. Rig.

RUSSELL COUNTY

Allison & Fitzwilliams' No. 1 Mohenny, NW SE Sec. 5-14-12w ..... Rig.
Phillips Pet. Co.'s No. 1 Salback, SE NW Sec. 32-12-14w ..... Rig on ground.
T. B. Slick's No. 1 Lellaus, SW cor. NE Sec. 36-15-13w.. Drlg. 810 ft.

ROOKS COUNTY

Burford-Brim's No. 1 Toxa, Sec. 22-9-17w ..... Spudded; shut down.
Prairie O. & G. Co.'s No. 1 Gick, SE cor. Sec. 22-9-19w.. Drlg. 3,030 ft.
Prairie O. & G. Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w ..... Drlg. 3,520 ft.

RUSH COUNTY

Sinclair Oil & Gas Co.'s No. 1 Sims, C SW NW NW Sec. 8-18-17w ..... Rig.
Danciger Oil Ref. Co.'s No. 1 Swindt, SW cor. Sec. 22-17-17w ..... Drlg. 800 ft.
Barnsdall Oil Co.'s No. 1 Brock, C SE SE Sec. 21-17-17w ..... Drlg. 815 ft.
Central Commercial Oil Co.'s No. 1 Brock, SE cor. SW SW Sec. 12-17-16w ..... Shut down.
Phillips Pet. Co.'s No. 1 Legleiter, NE cor. NW SE Sec. 10-16-18w ..... Drlg. 3,570-73; show of oil.
Danciger Oil Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w ..... Drlg 2,246 ft.
Wilcox Oil & Gas Co.'s No. 1 Schwartzkopf, NE cor. NW SW Sec. 27-17-17w ..... Drlg. 1,450 ft.
Wilcox O. & G. Co.'s No. 1 Woodward, NE cor. NE Sec. 35-27-17w ..... Drlg. 1,360 ft.

SALINE COUNTY

Dixie Oil Co.'s No. 1 Main, C SW SE Sec. 6-15-2w.... Drlg. 400 ft.
Kinney-Coastal Co.'s No. 1 Hughes, NE cor. Sec. 20-13-4w. Spudding.
M. Estey et al's No. 1 Peterson, C NE Sec. 6-16-5w ..... Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w..... Shut down 3,615 ft.
Nathan Jones et al's No. 1 Robertson, NW cor. SW Sec. 27-14-2w ..... T.D. 3,587 ft.; P.B.
Kenney Coastal Oil Co.'s No. 1 Beal, C NW Sec. 23-14-5w ..... Drlg. 2,250 ft.
T. B. Slick's No. 1 Rosenhagen, SW SE NE Sec. 33-27-4w ..... Drlg. 1,935 ft.
Hammond & Stout's No. 1 Roeder, SW NW Sec. 23-27-2w ..... Rig.
Twist et al's No. 1 Armstrong, NE NW Sec. 28-26-1e.... Rig spudding; shut down.

SEDGWICK COUNTY

Shawver et al's No. 1 Scott, SE cor. SW SW Sec. 10-28-1a ..... Location.
Barnett O. & G. Co.'s No. 1 Davidson, NW cor. NW SW Sec. 27-26-1e ..... Rig; spud; shut down.
Lewis et al's No. 1 Taylor, NW cor. NE Sec. 23-27-2..... Drlg. 2,950 ft.
Kyser et al's No. 1 Stroot, SW cor. NW Sec. 8-26-2w..... Total depth 3,800 ft.; underreaming 8-in. casing.
Lario & Blair's No. 1 Tjaden, C NE SE Sec. 22-29-2w.... 3,090 ft. on underreaming lugs.
R. Maglason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w ..... Shut down 350 ft.
Magnolia Pet. Co.'s No. 1 Wise, NW cor. NW Sec. 36-28-2w ..... Drlg. 2,925 ft.
Blankenship et al's No. 1 Tuttle, SW cor. NW Sec. 1-27-1 ..... Drlg. 2,350 ft.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 3-26-2w ..... Shut down 350 ft.
Morgan & Tilley's No. 1 Fitzgerald, NW cor. NE Sec. 5-26-1w ..... Shut down 800 ft.
Twist et al's No. 1 Joseph, CNL SW SE Sec. 4-25-1w..... Total depth 1,455 ft.; underreaming 12-in. casing.
Connell & Slick's No. 1 Cross, NE Cor. Sec. 27-25-1w.. Plugging back to 2,780 ft.; shot 20 qts. 2,690-2,730 ft.; pumping 12 bbls.
Miller Wentz' No. 1 Shaffer, NW cor. NE Sec. 9-27-2w.... Drlg. 1,965 ft.
Kroder et al's No. 1 Harden, SW cor. NW SW Sec. 20-26-1e ..... Shut down 1,100 ft.
Morgan et al's No. 1 Corn, SW cor. NE Sec. 28-26-1w.. Drlg. 3,260 ft.; underreaming lugs.
Shell Pet. Corp.'s No. 1 Lygrisse, SE cor. NE Sec. 15-26-2e ..... Simpson 3,163-66; est. 1,000 bbls.
Washabaugh et al's No. 1 Harrison, NW cor. NE NE Sec. 3-26-2w ..... Shut down 350 ft.
Sullivan et al's No. 1 Shelly, NW cor. NE SE Sec. 32-29-2e ..... Drlg. 2,740 ft.
Hartman & Skaer et al's No. 1 Hutchinson, SE cor. SE SW Sec. 23-28-3w ..... Drlg. 2,965 ft.
J. H. Tatlock's No. 1 Cook, SW cor. SW Sec. 25-28-2.... Drlg. 2,610 ft.
Producers Oil Co.'s No. 1 Jones, SW cor. NE SE Sec. 31-26-2 ..... Drlg. 2,560 ft.
G. L. Ramsey's No. 1 Schluesser, SW cor. SW Sec. 1-25-1 ..... Drlg. 3,477 ft.
Jones & Kirk's No. 1 Sheppard, SE cor. NE Sec. 4-25-1.... Drlg. 2,845 ft.
LaFont et al's No. 1 Carlton, C SE SE SW Sec. 24-28-1e.. Drlg. 850 ft.
T. B. Slick's No. 1 Rosenhagen, C SW SE NE Sec. 33-27-4w ..... Drlg. 1,935 ft.
Frank Wahn's No. 1 Wilson, C NE NW SE Sec. 9-26-1w.. Rig and tools.
Patten & Wentz' No. 1 Swanson, NW cor. NE Sec. 6-26-2e. Drlg. 2,320 ft. Drlg. 860 ft.
Connell & Slick's No. 1 Mohannah, C NE SE SE Sec. 3-25-1w ..... Drlg. 1,824 ft.
Reynolds & Rogers' No. 1 Updegraft, C SE SW SE Sec. 26-26-1w ..... Rig.
Jones & Kirk's No. 1 Sheppard, SE cor. NE Sec. 4-25-1e.. Drlg. 2,845 ft.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w ..... Shut down 3,085 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w.. Drlg. 500 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w ..... Shut down 1,320 ft.

SMITH COUNTY

Ohio Oil Co.'s No. 1 Unknown, NE SE Sec. 30-1-13w.. Abandoned 4,255 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w ..... Drlg. 3,485 ft.

SUMNER COUNTY

Gypsy Oil Co.'s No. 1 Williams, NW SE SW Sec. 16-35-3w ..... Wilcox 4,768-82 ft.; 480 bbls. in 11 hours.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Drlg. 3,895 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3.. Rig.

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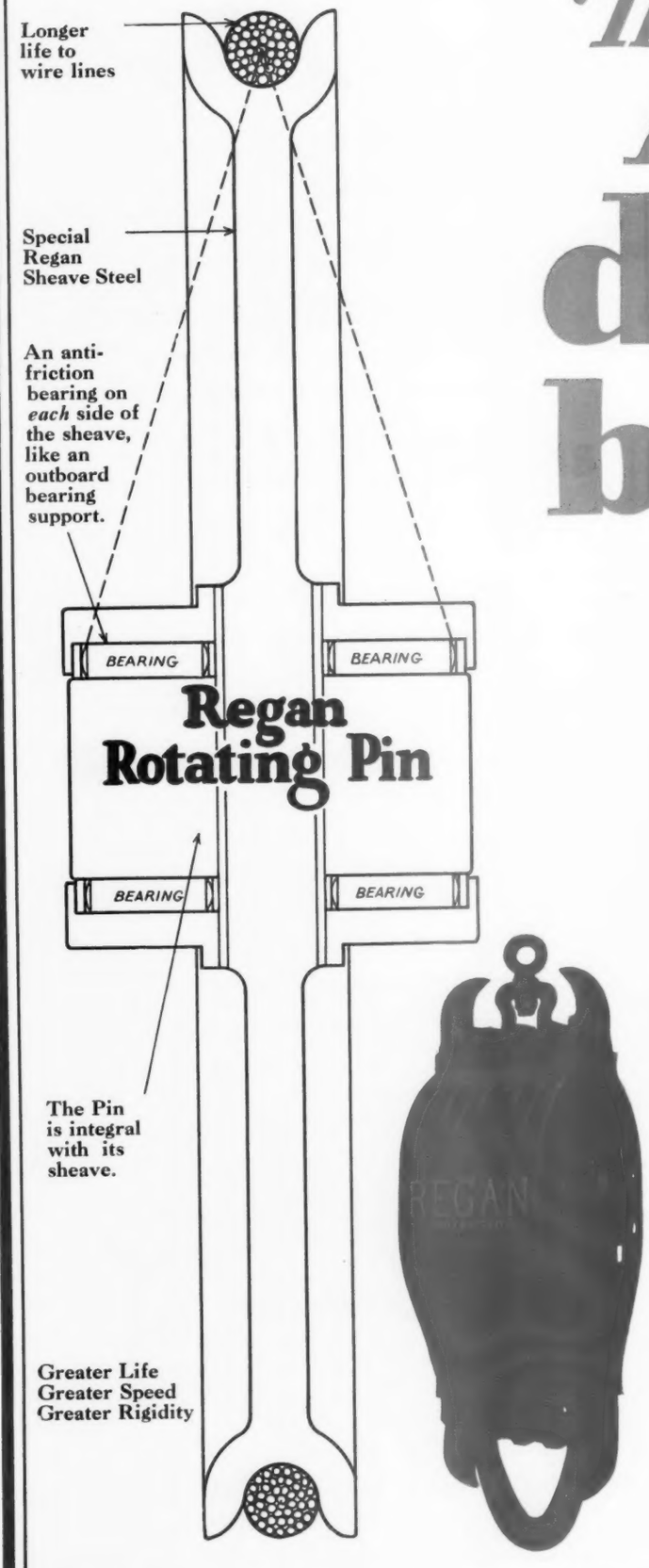

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GULF COAST

(Continued from Page 49)

the opinion that the sand would make a good well.

Operators also are watching Shell Petroleum Corp.'s attempts to make a first well on that company's Black Bayou Dome in the swamps of Cameron Parish, Louisiana. The well, from a shallow sand at 981 feet, is swabbing around 30 bbls. daily. The well will not flow without agitation, but it is thought it may make a small pumper. Plans of the company are to deepen the hole.

Two deals of interest to coastal operators were completed the last week, one involving the sale of the holdings of the Calcasieu Oil Co. of Houston to the Union Sulphur Co. The other was the sale of Harvey Smith and associates' holdings at Pierce Junction to the Saxet Gas Co.

The Calcasieu Oil Co. sale took in all the company's interests in the joint operations of this company, Magnolia Petroleum Co. and Union Sulphur Co. at East Hackberry, Cameron Parish, Louisiana. With the exception of the rights in Kelso Bayou, which flows through the field, and in Calcasieu Lake to the east, these three companies owned all the East Hackberry acreage jointly, and under development carried on by the Calcasieu Oil Co., the field, opened November 5, 1927, has become one of the major producers of southern Louisiana.

Harry C. Hanszen, president of the Calcasieu Oil Co., will continue his office in Houston, but all records and papers have been moved to Lake Charles, La. The Union Sulphur Co. purchased the company on the strength of sulphur possibilities at East Hackberry although that company is not new at the oil producing business, having developed an important Louisiana oil field at Sulphur Dome, Calcasieu Parish, Louisiana.

Saxet Gas Co. Buys Production

At Pierce Junction Saxet Gas Co. has purchased the 25-acre tract in the Herman Estate held by Harvey Smith and associates on the southwest side of the dome, where a new producing area has been opened. The deal includes one producing well, completed several weeks ago, which still is making better than 1,000 bbls. daily, and one drilling test. The sale price is reported at $400,000—$100,000 in cash, $100,000 to be paid in 60 days and the remainder to be paid in oil.

The only completion at Pierce Junction, which field has received important extensions and production additions in recent weeks, was on the north side of the dome, where Anderson & Plummer brought in No. 5 Whitehead flowing initially at the rate of 1,200 bbls. daily from sand at 4,770 feet. The oil tested 27.3 gravity at 88 degrees. Thirty-four feet of sand was taken in.

Other completions on the coast were Yount Lee Oil Co.'s No. 29 McFaddin, Spindletop, flowing 900 bbls. of 28.6 gravity oil, 4,856 feet; Union Oil Co.'s No. 742 fee, Sulphur, flowing 1,000 bbls.; Vacuum Oil Co.'s No. 6 Bordages, Lockport, an old well deepened, 700 bbls., 3,806 feet; Humble Oil & Refining Co.-Valley Oil Corp.'s No. 3 Hardie, Raccoon Bend, 200 bbls., 3,216 feet; Humble Oil & Refining Co.'s No. 4-B Reviere, South Liberty, 5 bbls. by heads, 2,347 feet; Gulf Production Co.'s No. 42 Phoenix-Hull, a workover, 200 bbls., 3,021 feet; same company's No. 88 Phoenix-Hull, 250 bbls., 2,438 feet; the same company's No. 18 Davis, Big Creek, a workover, pumping 30 bbls., 3,692 feet; Vinton Petroleum Co.'s No. 2 Matilda Gray, Vinton, pumping 75 bbls., 2,926 feet; Golden Rule Oil Co.'s Nos. 8 and 9 Sundeheusen, Brenham, both shallow wells making 120 bbls. jointly.

Boling—Wharton and Fort Bend

Scott & Peck have abandoned their No. 1 Armstrong, northeast flank of the dome, after failing to sidetrack at 4,600 feet.

Raccoon Bend—Austin County

Humble Oil & Refining Co. and Valley Oil Corp. have completed derrick for No. 4 Hardy. No. 1-D Grawunder is in sandy shale at 3,017-3,117 feet and has set 9⅝-inch casing. If this test is successful it will extend production 9,000 feet to the south.

Blue Ridge—Fort Bend County

Gulf Production Co.'s No. 17-B Blakely is drilling sandy shale at 3,822 feet. Sinclair Oil & Gas Co.'s No. 4 Davidson is sidetracking at 3,965 feet. South Texas Petroleum Co.'s No. 1 Blakely is drilling sand at 4,040 feet.

Pierce Junction—Harris County

Pure Oil Co.'s No. 1 Herman estate, southwest flank, an offset to Moody Corp.'s No. 4-B Settegast, wildcat producer, was bailing at the close of the week. It will test sand at a total depth of 4,090 feet. Saxet Gas Co. (formerly Harvey Smith and associates) is drilling at 3,293 feet in shale and lime in its No. 2 Herman estate. Rio Bravo Oil Co.'s No. 7-B Settegast is drilling gumbo at 4,767 feet. This company's No. 14-A Settegast is standing a location. Smith and associates' No. 1 Parsons, on the northwest, a former well worked over, tested salt water and has been shut down.

On the north side, Moody Corp.'s No. 3 Hume, a former producer, is drilling deeper at 4,512 feet. This company's No. 1 Boyles & Minchen, another former well, is rigging up to deepen, and a derrick is up for No. 2 Calvert.

South Texas Petroleum Co.'s No. 1 J. H. Meyers, a wildcat on the extreme south side of the dome, is drilling gumbo at 3,904 feet.

Liberty—Liberty County

Empire Gas & Fuel Co.'s No. 2 Goggan, on the northeast side of the dome, is in an oil-showing sand at a total depth of 3,375 feet and has cemented 9-inch casing to test. Sun Oil Co.'s No. 42 Mitchell, east side, has set 6⅝-inch casing at approximately 3,400 feet to test oil-showing sand. This company's No. 43 Mitchell is drilling sand at 1,179 feet. Liberty Oil & Sulphur Co.'s No. 1 Monroe is bailing open hole to test a shallow showing at around 550 feet. Mecom Oil Co.'s No. 1 Barrett is drilling at 2,912 feet.

Big Creek—Fort Bend County

Gulf Production Co.'s No. 53 Davis is drilling gumbo at 1,174 feet. Navarro Oil Co.'s No. 3 Hausler is drilling sand and boulders at 501 feet. This company's No. 4 Davis is standing a derrick. The Texas Company's No. 5 Wheat is drilling gumbo and lime at 2,200 feet.

Nash—Brazoria County

Rycade Oil Corp.'s No. 23 Wisdom is coring sand, shale and lime showing oil at 4,756 feet.

Saratoga—Hardin County

At Saratoga, Gladys Oil Co.'s No. 20 Hooks is bailing to test a shallow sand showing oil at 1,334 feet. Gulf Coastal Oil Co.'s No. 1 Patton is down 1,715 feet. Rio Bravo Oil Co.'s No. 107 B.B.B. &C. is drilling sand and shale at 956 feet. E. W. Skinner's No. 2 Sissler is fishing at 2,024 feet. West Production Co.'s No. 1 Baker is drilling tough shale at 4,285 feet. Weldon Oil Co.'s No. 18 Hooks is drilling at 1,115 feet.

Goose Creek—Harris County

Humble Oil & Refining Co.'s No. 75 Simms Smith, semiwildcat on to the north of the field, is drilling sandy shale at 4,289 feet. C. T. Rucker is rigging up for No. 1 Jones. Russell Farrell's No. 5 Gillette is drilling at 2,006 feet.

High Island—Galveston County

High Island almost had a completion in McLean Oil Co.'s No. 11 Cade, which sanded up after producing for a short time at the rate of 1,000 bbls. daily. This is a formerly abandoned hole taken over by this company from Sun Oil Co. and deepened at 3,740 feet. It is now fishing swab. This company's No. 12 Cade is drilling at 3,150 feet. Gulf Production Co.'s No. 8 Smith is drilling at 2,771 feet.

Spindletop—Jefferson County

Unity Oil Co.'s No. 100 McFaddin, between the shallow production and the deep sand area to the south, was put on the pump at 1,424 feet but no estimate has been made on the production. Yount Lee Oil Co.'s No. 97 McFaddin, in the deep sand area on the south, is waiting cement to set to test at 4,774 feet. This company's No. 100 McFaddin is in sand at 3,456 feet, and No. 101 is drilling gumbo at 2,367 feet. No. 102 is drilling at 2,056 feet. No. 21 fee, a work-over, is drilling sand at 3,956 feet.

Yount Lee Oil Co.'s No. 3 Gladys City, an old well being deepened, is drilling shale and lime at 5,356 feet. No. 13 Gladys City also has been rigged up to deepen. No. 76 Gladye City is drilling shale and lime at 5,753 feet. No. 84 Gladys City is waiting cement to set at 3,775 feet. No. 86 Gladys City is drilling sand at 3,534 feet. No. 87 Gladys City has set screen to test at 2,551 feet. No. 88 is drilling shale and lime at 3,461 feet.

Miscellaneous Texas Fields

Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 6-A Kountze, Markham, Matagorda County, looks like a 200-bbl. pumper. This test was unable to bail oil lower than 1,500 feet off bottom, and will be put on the pump. It is in sand 3,751-97 feet. West Production Co.'s No. 1 Myers, same field, is drilling sand rock at 3,815 feet. Sinclair Oil & Gas Co.'s No. 6 Norton, Damon Mound, Brazoria County, is drilling gumbo at 1,775 feet. Gulf Production Co.'s No. 19 Moore, Orchard, Fort Bend County, has spudded. Fort Bend Oil Co. has rigged up for No. 1 Ballarack, North Dayton, Liberty County. Sun Oil Co.'s No. 2 Kovelcik, North Dayton, is drilling shale at 2,625 feet.

SOUTH LOUISIANA

Hackberry—Cameron Parish

Calcasieu Oil Co.'s No. 6 Dorion, East Hackberry, is drilling rock at 1,225 feet. Cameron Oil Co. and Rycade Oil Corp.'s No. 4 Duhon, old Hackberry, is waiting cement to set to test oil sand at 3,142 feet. Noble & Ellender's No. 1 Ellender is drilling water sand at 3,226 feet. Progressive Oil Co.'s No. 1 Little is drilling gumbo at 1,412 feet. Sun Oil Co.'s No. 3 Vincent is drilling gumbo at 1,720 feet. Yount Lee Oil Co.'s No. 2 Kaough is drilling gumbo at 2,359 feet, and this company's No. 4 is drilling sand and boulders at 804 feet.

Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 2 Gulf Land, on the west side of the Old Hackberry Dome, is in oil sand at 3,895-3,902 feet and will test.

Lockport—Calcasieu Parish

Shell Petroleum Corp.'s No. 1 Miller is drilling gummy sandy shale and boulders at 4,379 feet. The Texas Company's No. 1 Moss is drilling gumbo and boulders at 1,120 feet. Vacuum Oil Co.'s No. 13 Miller is waiting on standard rig to pump at 4,396 feet. No. 9 Miller, a former well at 4,392 feet, is being rigged up to deepen. No. 15 Miller also is rigged up to deepen from its former producing depth at 4,378 feet. No. 24 Miller has drill stem stuck at 3.627 feet. No. 5 Bayou D'Inde is drilling sandy shale at 4,146 feet.

Jennings—Acadia Parish

Yount Lee Oil Co.'s No. 4 Crowley, east side, is drilling sand and shale at 6,553 feet. Abshire-Bolyard Oil Co. has started drilling in No. 5 Syndicate fee and is down 1,471 feet. Fred Getty's No. 2 Jennings-Clement is drilling at 1,431 feet.

Miscellaneous Louisiana Fields

At Bayou Bouillon, St. Martin Parish, Rycade Oil Corp.'s No. 7 Bouillon fee was drilled into oil sand at 3,142-48 feet and will set casing to test. Gulf Refining Co.'s No. 14 United, Sorrento, Ascension Parish, is drilling at 1,406 feet. Yount Lee Oil Co.'s No. 4 Louisiana Petroleum Co., Anse La Butte, St. Martin Parish, is drilling sandy lime at 5,329 feet. Gulf Refining Co.'s No. 14 Lutcher-Moore, Starks, Calcasieu Parish, is drilling at 4,482 feet, No. 15 Lutcher-Moore at 4,127 feet and No. 13 Industrial at 4,151 feet. Pure Oil Co.'s No. 7 Yount Lee Oil Co., Sweet Lake, Cameron Parish, is drilling shale at 5,173 feet. No. 8 Yount Lee Oil Co. is drilling sandy shale at 5,602 feet.

MISCELLANEOUS WILDCATS

Texas

Brazoria County — Shell Petroleum Corp.'s No. 4 Allen, Allen Dome, still is trying to pull stuck drill stem. It is at 5,154 feet. Meyers and associates' No. 3 Davidson, Clemens Dome, is drilling shale and lime at 916 feet. Empire Gas & Fuel Co.'s No. 3 Brock, Stratton Ridge, is drilling at 636 feet. Humphreys Corp.'s No. 1 Bryan, Bryan Mound, is sidetracking at 2,430 feet.

Chambers County—Pure Oil Co.'s No. 2 Mayes, Lost Lake, is drilling at 920 feet. No. 3 Mayes is drilling gumbo at 809 feet. Gulf Production Co. has rigged up for its second test at Hankamer Dome prospect. This will be No. 1 Boyt.

Fort Bend County — Gulf Production Co.'s No. 11 Trone, Long Point, has been abandoned in gyp at 1,073 feet. South Texas Petroleum Co.'s No. 1 Winkleman, Needville, is rigged up.

Hardin County—Gulf Coastal Oil Co.'s No. 1 Nona Mills, 5 miles east of Saratoga, is drilling shale at 1,576 feet.

Harris County—Baldwin and associates' No. 1 Kitzman, Cypress, is drilling shale at 3,841 feet. Humble Oil & Refining Co.'s No. 1 Irwin, Mykawa, is drilling at 2,146 feet. This company's No. 5 Warren, Hockley, is drilling shale at 3,925 feet. Baxton & Pundt's No. 1 Brown, Wooster Townsite, is drilling shale at 1,500 feet.

Jackson County—The Texas Company's No. 1 Moore, D.&G.N. Survey No. 311, 16½ miles north of Edna, is drilling shale at 3,670 feet.

Jefferson County — Gulf Production Co.'s No. 7 Bordages, Fannette, is drilling shale at 4,869 feet. This company's No. 11 Thomas, same dome, is drilling sand and shale at 4,571 feet. No. 6-A Bordages is waiting cement to set. Nederland Oil & Development Co's No. 1 Young, near Nederland, is drilling gumbo at 978 feet. Shell Petroleum Corp.'s No. 1 Heisig, Hampshire, is drilling gumbo at 1,577 feet. The Texas Company's No. 1 Pipkin, Big Hill, is waiting cement to set to test a sand at 5,900 feet. This test tries to blow out with a heavy gas pressure. Vacuum Oil Co.'s No. 1 Herbert-Broussard, T.&N.O. Survey No. 208, still is a location. Yount Lee Oil Co.'s No. 1 Nona Mills, Hillebrandt Survey, is drilling shale at 5,916 feet.

Liberty County—Humble Oil & Refining Co.'s No. 4 Sterling, Moss Bluff, is waiting casing cement to set at 3,223 feet. Total depth of the hole is 3,277 feet. Republic Production Co.'s No. 1 Myslivec, north of Hardin, is coring at 1,561 feet. The Texas Company's No. 2 Davis, Davis Hill, is drilling hard sand at 4,492 feet. Union Exploration Co.'s No. 2 Esperson, Sheeks, which tested salt water at 5,567 feet, is pulling screen to deepen.

Matagorda County—Crossland and associates' No. 1 Hawkins, Shepherds Mott, is drilling shale at 4,772 feet.

Orange County—The Texas Company's No. 1 Kuhn is in sand and shale at a total depth of 3,162 feet. It is reaming.

Waller County—The Texas Company's No. 1 Young is drilling hard lime rock and sand at 2,708 feet.

South Louisiana

Ascension Parish—Gulf Refining Co.'s No. 1 Belle Helene, Darrow Dome, is drilling gumbo at 4,453 feet. This company's No. 14 United, Sorrento, is drilling at 1,406 feet.

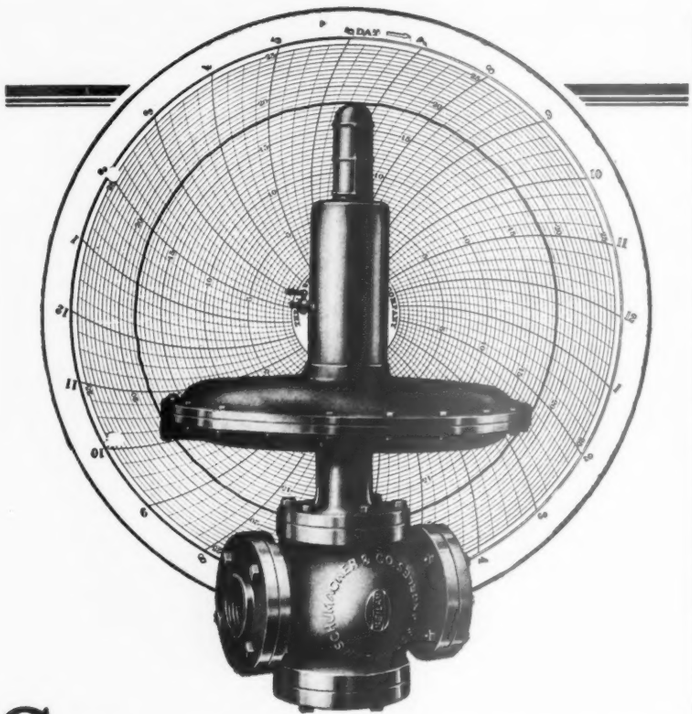
Calcasieu Parish—J. O. Davis' No. 1 Mimms, Section 20-9s-7w, is drilling sand at 1,531 feet.

Cameron Parish — Shell Petroleum Corp.'s No. 9 Watkins, Black Bayou, is swabbing around 30 bbls. daily from sand at 981 feet. This company's No. 6 Watkins is drilling sandy shale and lime at 4,648 feet. No. 10 Watkins is a derrick. The Texas Company's No. 3-A Calcasieu Lake, Calcasieu Lake Dome, is standing rigged up.

Iberia Parish—The Texas Company's No. 3-A Vermillion Bay is drilling hard rock at 4,676 feet. Gulf Refining Co.'s No. 1 Moresi, Loreauville, is drilling at 3,441 feet.

Iberville Parish — Shell Petroleum Corp.'s No. 3 Wilbert, White Castle, is drilling hard sand at 4,423 feet. Standard Oil Co.'s No. 2 Wilbert, Bayou Blue, is standing at 100 feet. No. 3 Wilbert is a rig. No. 1 Schwing is standing at 4,076 feet and No. 2 Schwing is standing as a rig. No. 5 also is a rig and Nos. 3 and 4 are locations.

Plaquemine Parish—The Texas Company's No. 1 Garden, Island Bay, southeast of Venice, is drilling gumbo at 523 feet. Gulf Refining Co.'s No. 1 Morris & Rose, Spanish Pass, is standing rigged.



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This regulator improves the operation of gas engines by supplying fuel gas at nonvarying pressure. It reduces line gas pressure to any desired point between 2 and 12 ounces without fluctuation, regardless of the flow conditions.

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—Large Sensitive Diaphragms
—Full Pipe Capacity
—Elimination of Chattering
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St. Landry Parish—The Texas Company has derrick up for No. 2 Botney Bay, Port Barre. Gulf Refining Co.'s No. 1 Gaudet, same dome, is rigged.

St. Martin Parish—Operations in this parish are standing because of high water.

Terrebonne Parish—Southern Gas Co.'s No. 1 Waterproof, Houma, is shut down in sandy shale at 875 feet. The Texas Company's No. 1 Lake Barre, is drilling salt at 820 feet. This company's No. 1-A Dog Lake Bayou is drilling gumbo at 720 feet. The Texas Company's other operations on new domes in this parish are unchanged.

BOGGY CREEK FAILURE ON SOUTHWEST SIDE

By Neil Williams

CORSICANA, Tex., Apr. 29.—An attempt to make a further extension at Boggy Creek southwest to the south side of the dome met with failure when Humble Oil & Refining Co. abandoned No. 1 Gauger as dry at 3,952 feet. This was one of two abandonments, the only completions, Transcontinental Oil Co.'s No. 1 Derden, a Navarro County wildcat, having tested salt water at 3,205 feet.

Humble Oil & Refining Co. made location for No. 1 J. C. Beard, approximately midway on the south side of the dome between the Gauger test and No. 1 Purvey, completed as a small gasser.

At Boggy Creek, Humble's No. 1 Peter Hollway is waiting on a standard rig to pump having 2,000 feet of oil in the hole. This test on the southeast side was completed originally last September flowing 72 bbls. an hour at 3,767 feet but because of a heavy salt water flow has been plugged back to 3,670 feet and liner has been reset.

C. F. Lytle's No. 1 Thompson, Limestone County, Mexia Trinity test, which tested salt water at 6,061 feet a week ago, is shut down temporarily. Arrangements are being made to carry this test to 10,000 feet.

Daily average production the week ending April 27 was:

	Bbls.
Boggy Creek	2,608
Cedar Creek	130
Currie	439
Mexia	5,389
Minerva	680
Nigger Creek	345
Powell	8,308
Richland	375
Thrall	35
Wortham	1,275
Total	19,584
Total previous week	20,502
Decrease	918

OKLAHOMA FIELDS

(Continued from Page 42)

32-4s-1. H. L. Sturm's No. 2 Fish, SW cor. NE SW, Section 35-3s-4w, is producing 15 bbls. from sands at 894-993 feet.

Beckham County

Day Oil Co.'s No. 1 Ault, C NW NW, Section 33-8-21w, has been abandoned at 1,515 feet.

Cotton County

Clifford Moore's No. 2 Moore, CWL NE NE SW, Section 2-2s-10w, is drilling at 200 feet.

Creek County

Murphy Oil Co. made location for No. 1 Lapham, SW cor. NE SW, Section 35-19-8. H. U. Bartlett's No. 4-B Bartlett, NE cor. NW NE, Section 18-19-9, is spudding. Miller and others' No. 1 Irelan, SE cor. NE, Section 4-17-11, is drilling at 450 feet. G. F. Collins and others moved a machine to the location for No. 2 Halsell, NE cor. SW SW, Section 12-17-11. Franchott and Mid-Continent Petroleum Corp.'s rig is up for No. 4 Garrett, NE cor. SW, Section 16-16-10. W. H. Elson and others made location for No. 1 Harjo, NE cor. SW SW, Section 27-14-10.

Magnolia Petroleum Co.'s No. 15 Musselman, NW cor. NE NW SE, Section 8-18-7, made 25 bbls. in sand at 2,490-2,525 feet. B. C. Burnett's No. 1 Fife, NE cor. SW SW, Section 28-18-11, is dry and abandoned at 2,412 feet. Collins and others' No. 1 Halsell, NW cor. SE SW, Section 12-17-11, has been completed for 10 bbls. in sand at 1,191-1,205 feet. Fusselman and others' No. 5 Pickett, C NE SW, Section 33-17-11, has been abandoned at 1,683 feet.

Mid-Continent Petroleum Corp. and Franchot's No. 2 Garrett, NW cor. NE SW, Section 16-16-10, was completed for 510 bbls. in sand at 2,860-74 feet. The Texas Company's No. 1 Posey, C W half SE, Section 11-15-10, is dry and abandoned at 2,800 feet. Madden & Madden's No. 1 McNack, SE cor. NE SE, Section 34-15-10, is a dry hole at 3,160 feet. F. A. Havell and others' No. 1-A Ramsey, SW cor. NE NW, Section 11-14-10, has been abandoned at 3,184 feet.

Hughes County

Independent Oil & Gas Co. and Gypsy Oil Co. made location for No. 1 W. Marshall, NE cor. SW, Section 7-8-9. Independent Oil & Gas Co.'s No. 1 Yahola, SE cor. SW NE, Section 6-8-9, has been completed for 68,000,000 feet of gas in Cromwell sand at 3,419-29 feet. Sunray Oil Co.'s No. 2 S. Nitchey, SE cor. NW NE, Section 19-5-8, flowed 1,200 bbls. in Cromwell sand at 2,525-2,637 feet.

Jefferson County

Pearce & Brown made location for No. 1 School Land, SE cor. NE NW, Section 16-5s-8w. O. V. Beck made location for No. 3 Seay, SW cor. SE SW SE, Section 34-6s-5w.

Kay County

De Camp & Lancer made location for No. 1 Eggers, C SW, Section 26-28-1w. Comar Oil Co. is building the rig to deepen No. 3-W Beverlin, NW cor. SE NW, Section 34-25-1w, Tonkawa Pool, from total depth of 4,182 feet. Harris & Haun's No. 1 Brown, SW cor. Section 9-27-1w, has been completed for 15 bbls. in sand at 3,462-71 feet. Anolu Oil Co.'s No. 2 Barr, C NE NW, Section 16-27-1w, is dry and abandoned at 3,619 feet.

Kingfisher County

Superior Oil Co. made location for No. 1 Story, SE cor. Section 25-19-5w.

Kiowa County

Cummings and others' No. 1 Prough, NE cor. SE SW, Section 18-6-16w, drilled to 80 feet and shut down. Engle and others' No. 1 Kelsey, NW cor. SW, Section 20-7-17w, is dry and abandoned at 1,045 feet. S. B. Cloys' No. 1 Brazil, SW cor. NE, Section 34-7-17w, has been abandoned at 1,425 feet. Head & Amphlett's No. 1 Abbott, NE cor. SW NW, Section 32-6-16w, is dry and abandoned at 460 feet.

Logan County

Blackwell Oil Co.'s No. 2 Quigley, NE cor. SE NW, Section 28-18-4w, Crescent-Lovell Pool, was completed for 90 bbls. in sand at 4,081-97 feet.

Noble County

Alco Royalty Co.'s No. 1 Waltermire, SE cor. NW, Section 33-21-1w, had sand at 3,385-98 feet and gauged 6,030,180 feet of gas.

Muskogee County

E. Price has a machine on the ground for No. 4 Woodall, CSL SW SW, Section 20-15-16. Haynes and others' No. 1-A Crittenden, SW cor. NE, Section 6-14-19, is dry and abandoned at 885 feet. R. & R. Drilling Co.'s No. 1-A Brown, SE cor. Section 18-13-16, made 500,000 feet of gas in sand at 997-1,015 feet. Johnson and others' No. 1 Lowther, NW cor. NE NW, Section 23-13-18, has been completed for 1,000,000 feet of gas in sand at 663-79 feet. E. A. Smith's No. 1 Barnes, SW cor. SE SW, Section 16-13-19, has been abandoned at 788 feet. Colton & Lester's No. 1 Parker, C NW SW, Section 31-12-19, is dry and abandoned at 1,737 feet.

Okfuskee County

F. Moore and others' No. 1 Autry, SW cor. SE NW, Section 12-10-11, is drilling at 650 feet. Barnsdall Oil Co. has the rig on the ground for No. 1 McKinney, NW cor. SE, Section 18-10-11. Josey Oil Co.'s No. 3 Fields, SW cor. NW NW, Section 33-12-11, made 100 bbls. from sand at 3,656-81 feet. Champlin Oil & Refining Co.'s No. 6 Washington, SW cor. NE SE, Section 15-11-11, made 400 bbls. in sand at 3,469-98 feet. The Prairie Oil & Gas Co.'s No. 1 Miracle, NE cor. SE SW, Section 29-12-10, made 800 bbls. from Cromwell sand at 3,320-22 feet.

Osage County

Peters Petroleum Co. and others' No. 11, NW cor. SE NW, Section 17-27-6,

Burbank Pool, is a rig under construction. Indian Territory Illuminating Oil Co. made location for No. 1, SW cor. NW, Section 16-27-10. Peters Petroleum Co. and Producers & Refiners Corp. made location for No. 1, SE cor. SW, Section 22-27-11. Peters Petroleum Co. made location for No. 2, SE cor. NW, Section 28-24-10. M. Grace Maxwell has a machine on the location for No. 3, NW cor. NE SE SW, Section 5-24-11. Pueblo Petroleum Co. moved a machine in for No. 2, NE cor. SE SW, Section 14-21-8. The Prairie Oil & Gas Co. made location for No. 5, SW cor. SE SW, Section 30-25-8.

Minnehoma Oil Co.'s No. 4, NE cor. SW, Section 11-26-8, is pumping 30 bbls. from sand at 2,187 feet after plugging back from 2,200 feet. Peters Petroleum Co.'s No. 9, SE cor. NW SE NW, Section 26-25-9, is dry and abandoned at 2,257 feet. Tidal Oil Co.'s No. 1, SW cor. NE, Section 25-24-8, has been abandoned at 2,305 feet. Red Bank Oil Co.'s No. 1, NW cor. NE NW, Section 29-23-8, has been completed for 15 bbls. in sand at 2,807 feet after deepening from 2,798 feet. L. G. Stanley's No. 7, SW cor. NW SE, Section 36-22-8, made 35 bbls. from sand at 532-70 feet. Tidal Oil Co.'s No. 1, SW cor. NE, Section 29-21-11, has been completed for 25 bbls. in Burgess sand at 2,005-11 feet.

Oklahoma County

Mid-Kansas Oil Co. and W. R. Ramsey moved a rig to the location for No. 1 Trosper, NE cor. NW, Section 19-12-1w.

Okmulgee County

E. W. Dodge's No. 1-A Buffalo, NW cor. SE, Section 32-15-12, is a machine rigging up. A. H. Howard's No. 1-A Doyle, CEL W half SE SW, Section 17-13-14, is rigging up. J. L. Selby's No. 12 Connor, CNL NW NW, Section 6-14-15, made 8 bbls. in sand at 640-52 feet. H. H. Diamond Oil Co.'s No. 1-A Jones, CEL NE NE, Section 28-13-11, has been abandoned at 2,712 feet.

Pawnee County

Peter Adamson's No. 2 Parker, SE cor. SW SE, Section 24-21-7, was deepened from Wilcox sand at 2,770-77 feet to Siliceous lime at 2,851-53 feet and is producing 360 bbls. Miller & Strattman, SW cor. SE, Section 26-20-9, is a machine rigging up. The Prairie Oil & Gas Co. made location for No. 10 McNeal, SW cor. NE NW, Section 10-20-8. Swift & Rush's No. 2 Smeltzer, NW cor. SE NW, Section 35-20-9, is a machine rigging up.

Payne County

T. J. Hughes' No. 2 Powers, NE cor. SW SW NW, Section 10-18-5, was completed for 7,500,000 feet of gas in sand at 2,909-18 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 1 Anderson, NE cor. NW, Section 3-17-6, is dry and abandoned at 4,191 feet in Siliceous lime.

Pontotoc County

Wilcox Oil & Gas Co.'s No. 1 Haney, NW cor. SE NW, Section 23-4-7, is dry and abandoned at 1,840 feet.

Pottawatomie County

W. B. Pine's No. 1 Lingerfelt, SW cor. NE, Section 18-8-5, Maud Pool, is preparing to deepen from 4,142 feet to the Wilcox sand. Magnolia Petroleum Co. and Pierce made location for No. 2 Hubanks, SE cor. NW, Section 17-7-4, Pearson area. Gypsy Oil Co. has a rig on the ground for No. 1 Green, NW cor. SE, Section 17-7-4. Simms Petroleum Co. made location for No. 1 Swift, SW cor. Section 17-6-4, Asher Pool. Simms & Wrightsman made location for No. 1 Alexander, SE cor. Section 18-6-4. C. J. Wrightsman has the cellar dug for No. 1 Bledsoe, NW cor. SW NW, Section 20-6-4.

Wilcox Oil & Gas Co.'s No. 3 Smith, NE cor. NW SE, Section 8-8-5, made 712 bbls. in sand at 4,026-27 feet. Amerada Petroleum Corp. and Barnsdall Oil Co.'s No. 3 Wallace, SE cor. SW SW, Section 17-8-5, Maud Pool, was completed for 405 bbls. in sand at 4,100-02 feet. Gypsy Oil Co.'s No. 6 Miller, SW cor. NE SE, Section 18-8-5, made 47 bbls. in sand at 4,045-50 feet. Blackwell Oil & Gas Co.'s No. 2 Cherry, NE cor. NW NE, Section 25-7-4, St. Louis Pool, swabbed 225 bbls. from Simpson sand at 4,160-70 feet. Magnolia Petroleum Co.'s No. 1 Pugh, SW cor. SE SE, Section 7-7-5, made 87 bbls. in Simpson sand at 4,211-18 feet. No. 2 Nicholas, NE cor. NW, Section 31-7-5, was completed for 12 bbls. at 4,413 feet after it was plugged back from 4,416 feet in Wilcox sand.

Seminole County

Papoose Oil Co. is erecting the rig for No. 1 James, SE cor. NW, Section 32-10-6. Carter Oil Co. and others made location for No. 1 C. Shaffer, NE cor. NW, Section 35-10-6, Searight Pool. Magnolia

RECAPITULATION SHEET, APRIL 25, 1929

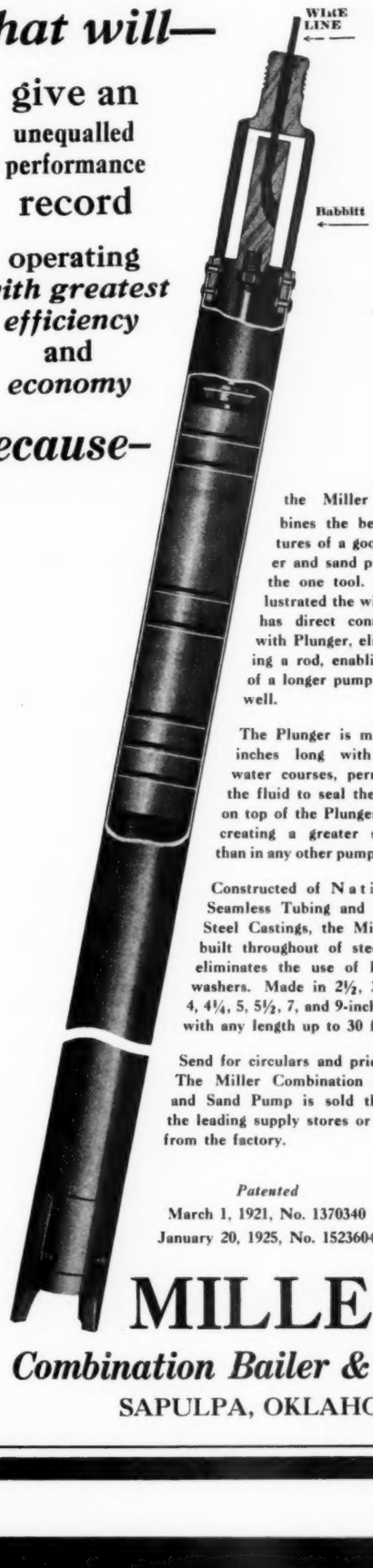
Company—	Little River	Carr	Mudd	Mission	Bowlegs	Earlsboro	Seminole	Searight	Total
Amerada	1 050	....	3 459	1.245	900	1,282	968	366	9,361
Atlantic	....	....	....	....	1,033	110	422	....	1,565
Barnsdall	677	4,120	....	....	384	7.244	1.215	30	13,670
Blackwell	2,040	....	....	....	....	....	....	....	2,040
Bryan-Emery-Carter	13	....	....	....	....	....	....	....	13
Burke-Greis	....	....	....	....	....	1,360	....	....	1,360
Carter	3,677	2,450	....	3,855	3,402	2,935	6,284	6,306	34,909
Champlin	1,000	....	....	....	....	....	....	....	1,000
Continental	1,701	....	....	....	....	758	....	....	2,459
Cosden & Co.,	....	....	....	....	....	4.136	....	....	4.136
Darby	.	....	....	100	....	....	....	....	100
Dixie	....	....	....	....	68	....	....	....	68
Empire	801	3.443	....	....	397	982	282	....	5,905
Gypsy	10,601	98	659	7.749	1,951	8.435	2.136	598	32.227
Independent	5 808	....	680	4,954	....	2.197	1,790	....	16.409
I.T.I.O.	4,156	....	....	....	7,203	....	2.618	....	13,977
King.-Shell	....	....	....	....	....	....	499	....	499
Laurel	....	....	490	....	....	....	....	....	490
McCullough	....	....	....	....	185	....	....	....	185
Magnolia	1,515	5	687	....	2.008	7,868	260	120	12,463
McCullough-Sands	10	....	....	....	....	....	....	....	10
Marland-Shaffer	385	....	....	....	....	....	....	....	385
Marland-Shell	....	....	229	....	....	....	....	....	229
Marland	....	....	....	1,212	....	....	....	....	1,212
McMahon	....	....	....	799	....	....	....	....	799
Mid-Cont.	8,730	....	40	....	786	1,045	680	1,812	13,093
Mid-Kans.	....	....	....	....	....	35	....	....	35
Minnehoma	....	....	....	468	102	....	....	....	510
Pine	1,296	....	1,173	765	....	....	....	20	2,854
Pine-Phillips	284	....	....	....	....	....	....	....	284
Phillips	....	....	502	....	....	20	60	....	582
Prairie	9,215	2,665	295	2.217	4,792	8,041	4,743	531	32,499
Prairie-Slick	240	....	....	....	....	....	....	....	240
Pure	5,282	....	2,470	....	4,575	....	5,026	1,070	18,432
Reiter-Foster	757	....	....	....	....	....	....	....	757
Shaffer	240	....	....	1,120	320	170	....	....	1,850
Shell	2,772	....	....	....	60	1,639	288	214	4,973
Shell-Marland	....	....	....	509	....	....	....	....	509
Shell-Papoose	....	....	....	1,756	....	....	....	....	1,756
Sinclair	2,477	1,372	1,210	2,279	4,787	1,460	1,884	1,440	16,909
Skelly	1,714	....	....	....	....	3,302	....	....	5,016
Skelly-Atlantic	....	....	....	....	....	2,392	....	....	2,392
Skelly-Margay	....	....	273	....	....	....	....	....	273
Snowden-McSweeney	620	....	....	....	....	....	....	....	620
Superior	3	....	....	....	....	2,259	142	....	2,404
Texas	1,205	....	490	....	760	1,965	295	20	4,735
Texas-Indep.	2,910	....	....	....	....	....	....	....	2,910
Tidal	254	....	525	235	1,515	3,430	1,761	....	7,520
Turman	....	....	....	....	....	....	1,671	....	1,671
Twin State	57	....	315	3,450	....	105	....	112	4,039
Wilcox	....	....	1,209	....	....	....	....	221	1,430
Total	77,490	14,153	14,706	32,033	35,028	63,170	33,024	12,860	283,764
Total Wells	320	32	109	85	307	305	276	74	1,518

MILLER COMBINATION BAILER & SAND PUMP—*Speed With Certainty*

The MILLER is the SAND PUMP *that will—*

give an unequalled performance record operating *with greatest efficiency* and *economy*

because—



the Miller Combines the best features of a good bailer and sand pump in the one tool. As illustrated the wire line has direct connection with Plunger, eliminating a rod, enabling use of a longer pump in the well.

The Plunger is made 18 inches long with eight water courses, permitting the fluid to seal the valve on top of the Plunger, thus creating a greater suction than in any other pump made.

Constructed of National Seamless Tubing and Sivyer Steel Castings, the Miller is built throughout of steel and eliminates the use of leather washers. Made in 2½, 3, 3½, 4, 4¼, 5, 5½, 7, and 9-inch sizes with any length up to 30 ft.

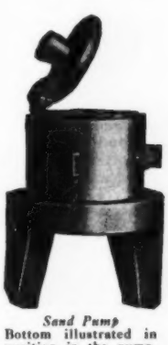
Send for circulars and price list. The Miller Combination Bailer and Sand Pump is sold through the leading supply stores or direct from the factory.

Patented
March 1, 1921, No. 1370340
January 20, 1925, No. 1523604

Star Bottom used for cutting the sand loose and preferred by some to the Chisel Bottom.

Chisel Bottom will save the expense of running tools and its chisel shape prevents sticking in tightly packed sands.

Bailer Bottom will speed up production in cavy holes by time saved in picking up cuttings.



Sand Pump Bottom illustrated in position in the pump.

MILLER

Combination Bailer & Pump Co.

SAPULPA, OKLAHOMA

Petroleum Co. has the rig on the ground for No. 2 Anderson, NW cor. SE, Section 18-9-6, Earlsboro Pool. No. 3 A. Anderson, SW cor. NE, Section 18-9-6, is a rig on the ground. No. 4 A. Anderson, NE cor. SW, Section 18-9-6, is also a rig on the ground.

Sinclair Oil & Gas Co. is moving in the tools at No. 5 Cudjo "B," NW cor. Section 35-9-6, for a shallow gas test. Barnsdall Oil Co. is building the rig for No. 2 Kepeya, SW cor. SE SW, Section 7-9-7. Marland Production Co. made location for No. 1 Boreing, NE cor. NW SE, Section 17-9-7. Carter Oil Co. made location for No. 2 C. Coker, SW cor. SE SW, Section 2-8-5, Carr City Pool. Gypsy Oil Co. made location for No. 1 C. Coker, SE cor. SW SW, Section 2-8-5.

Barnsdall Oil Co.'s No. 3-A Hotulke, SE cor. NE SE, Section 22-7-6, Little River Pool, is a cellar. Amerada Petroleum Corp. has the rig on the ground for No. 1 Hotulke, SE cor. SW SE, Section 22-7-6. The Texas Company and Independent Oil & Gas Co. moved the rig in for No. 3 H. Hotulke, SW cor. SE SE, Section 22-7-6. Gypsy Oil Co. has the cellar dug for No. 9 Cotcha, NW cor. SW SW, Section 23-7-6.

No. 10 Cotcha, SE cor. SW SW, Section 23-7-6, is also a cellar. Carter Oil Co.'s No. 1 Factor, SE cor. NW, Section 26-7-6, which was plugged back from 4,206 feet to 3,095 feet and tested, is making 5,000,000 feet of gas after the pipe was shot. No. 2 Factor, SW cor. SE NW, Section 26-7-6, has been deepened from 3,236 feet to 3,246 feet and is making 20,000,000 feet of gas. Independent Oil & Gas Co.'s No. 1 Carpenter, NE cor. Section 27-7-6, is cleaning out to deepen from 3,118 feet.

Independent Oil & Gas Co. made location for No. 3 Carpenter, NW cor. NE NE, Section 27-7-6. Gypsy Oil Co. made location for No. 2 Payne, SW cor. NE NE, Section 5-7-7. Indian Territory Illuminating Oil Co. made location for No. 1 Parnosky, NW cor. SE SE, Section 7-6-8. Hoffman and others made location for No. 1 Tecumseh, SE cor. SW, Section 24-5-5. Barnsdall Oil Co. made location for No. 1 Lusty, SW cor. NE, Section 13-5-7. The Texas Company made location for No. 10 Lucy, NE cor. SE SE, Section 18-5-8, Allen Pool. Location was also made for No. 11 Lucy, SW cor. SE SE, Section 18-5-8. No. 12 Lucy, NW cor. NE NE, Section 19-5-8, is also a location.

The Prairie Oil & Gas Co. is moving the rig in for No. 1 Patten, NW cor. SW NE, Section 18-6-8. Location has been made for No. 10 Billington, NE cor. SW NW, Section 11-8-5, Carr City Pool. No. 11 Billington, NW cor. SW NW, Section 11-8-5, is also a location. The Prairie Oil & Gas Co. and T. B. Slick's No. 3 Cudjo, NE cor. NW NW, Section 26-7-6, Little River Pool, is a cellar. No. 4 Cudjo, SE cor. NW NW, Section 26-7-6, is also a cellar. The cellar has been dug for No. 1 Dixon, NW cor. NW NE, Section 4-8-7.

Burke Greis Oil Co.'s No. 2 Mayes, SW cor. NE NE, Section 1-9-5, Earlsboro Pool, swabbed 460 bbls. from Wilcox sand at 4,552-81 feet. Skelly Oil Co. and Atlantic Oil Producing Co.'s No. 4 Lottie, NW cor. Section 6-9-6, made 659 bbls. from Wilcox sand at 4,318-25 feet. Sinclair Oil & Gas Co.'s No. 1 Thompson, NE cor. SW, Section 18-9-7, was completed for 1,565 bbls. in Wilcox sand at 4,250-61 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 1 Chisholm, SW cor. SW NW, Section 22-10-7, has been abandoned at 3,710 feet.

Amerada Petroleum Corp.'s No. 2 Fehlig, SE cor. SW NE, Section 7-8-5, Maud Pool, made 140 bbls. from Wilcox sand at 4,330-31 feet. Carter Oil Co.'s No. 1 Aleck, C SW SE, Section 23-7-6, Little River Pool, was completed for 17,000,000 feet of gas in Gilcrease sand at 3,110-17 feet. Magnolia Petroleum Co.'s No. 3 Reed, SW cor. NW, Section 17-5-8, swabbed 292 bbls. from sand at 2,560-2,615 feet.

Sequoyah County

Buffington Oil & Gas Co.'s No. 1 Melcher, C SW NW, Section 31-12-24, is a dry hole at 3,000 feet.

Stephens County

Headrick and others' No. 1 Thompson, SE cor. NW, Section 1-1-8w, is rigging up. American Pipe Line Co.'s No. 5 Dexter, SE cor. NW, Section 34-1s-8w, is drilling at 50 feet. Lone Eagle Oil Co.'s No. 9 Simpson, NW cor. SE, Section 34-1s-8w, is drilling at 686 feet. George Pace and others' No. 2 Cooper, NE cor. SE SW, Section 16-2s-7w, is drilling at 551 feet.

Amerada Petroleum Corp. and Amos Drilling Co.'s No. 1 Richards, SW cor. NE NE, Section 19-2s-4w, is dry and abandoned at 3,503 feet.

Wagoner County

C. F. Finefield has a machine on the ground for No. 1-A Willis, NW cor. NE NE SW, Section 34-18-17. Horner and others' No. 1-A Barnett, NW cor. SE, Section 34-18-17, is drilling at 680 feet. Cherokee Public Service Co.'s No. 1 Marshall, SW cor. NE SE, Section 35-16-17, has been completed for 750,000 feet of gas in sand at 771-80 feet.

SEMINOLE AREA DAILY PRODUCTION
For April 25

Little River Pool

S.T.R.	Company, farm—	Wells	Prod.
2-7-6	Amerada, Nitey	3	515
35-8-6	Amerada-Wilcox, Fore	2	535
	Total		1,050
23-7-6	Barnsdall, Cotcha	2	375
22-7-6	Barnsdall, Hotulke	2	210
4-7-6	Barnsdall, Walker	1	92
	Total		677
11-7-6	Blackwell, Baker	4	1,155
35-8-6	Blackwell, Nitey	5	275
14-7-6	Blackwell, Tally	4	610
	Total		2,040
4-7-6	Bryan-Emery-Carter, Walker	1	13
23-7-6	Carter, Cotcha	3	125
23-7-6	Carter, Cudjo L	2	130
36-8-6	Carter, Fish	4	600
11-7-6	Carter, C. Harjo	3	2,070
13-7-6	Carter, M. Harjo	4	1,025
11-7-6	Carter, Jackson	4	1,045
24-7-6	Carter, Larney	4	1,917
10-7-6	Carter, Lena	1	725
11-7-6	Carter, Moore	2	325
14-7-6	Carter, Tewee	6	985
11-7-6	Carter, M. Thomas	1	500
12-7-6	Carter, Wilson	1	230
	Total		9,677
14-7-6	Champlin, Tewee	2	1,000
36-8-6	Continental, Cosar	7	916
25-8-6	Continental, M. Cosar	1	396
11-7-6	Continental, Milsey	2	389
	Total		1,701
24-7-6	Empire, Charty	1	120
13-7-6	Empire, Coker	2	570
27-7-6	Empire, Cotcha	1	101
3-7-6	Empire, Sandlin	1	10
	Total		801
32-8-6	Gypsy, C. Brown	2	430
33-8-6	Gypsy, M. Brown	1	670
36-8-6	Gypsy, Campbell	2	22
22-7-6	Gypsy, Canard	2	350
36-8-6	Gypsy, W. Cosar	2	190
23-7-6	Gypsy, Cotcha	8	5,452
11-7-6	Gypsy, Denmark	4	972
14-7-6	Gypsy, Hulhoke	10	1,350
1-7-6	Gypsy, Munger	1	5
5-7-7	Gypsy, Payne	1	9
35-8-6	Gypsy, Pattey	4	860
11-7-6	Gypsy, Renton	3	300
	Total		10,601
27-7-6	Independent, Carpenter	1	1,956
13-7-6	Independent, R. Davis	4	1,040
14-7-6	Independent, Tewee	6	900
15-7-6	Independent, Williams	1	110
23-7-6	Indep. et al, Harris	8	1,307
2-7-6	Indep. et al, Davis	4	495
	Total		5,808
1-7-6	I.T.I.O., Campbell	1	133
35-8-6	I.T.I.O., Dungan	3	452
1-7-6	I.T.I.O., M. A. House	1	43
1-7-6	I.T.I.O., W. E. House	1	32
2-7-6	I.T.I.O., Will House	4	1,007
26-8-6	I.T.I.O., Hull	3	129
1-7-6	I.T.I.O., Jackson	3	321
1-7-6	I.T.I.O., McCulla	3	780
2-7-6	I.T.I.O., Nitey	6	138
36-8-6	I.T.I.O., Phoebe A.	2	54
36-8-6	I.T.I.O., Phoebe B.	3	67
1-7-6	I.T.I.O., Reed	1	8
1-7-6	I.T.I.O., Sokelheche	3	392
	Total		4,156
2-7-6	Magnolia, Cruise	4	224
11-7-6	Magnolia, Denby	4	224
14-7-6	Magnolia, Harjo A	2	110
14-7-6	Magnolia, Harjo B	2	285
35-8-6	Magnolia, Pattey	4	138
31-8-7	Magnolia, Reed E	1	30
22-7-6	Magnolia, Reed F. H.	3	504
	Total		1,515
4-7-7	Marland-Shaffer, Harris	1	385
4-7-7	McCllough-Sands, Harrison	1	10
11-7-6	Mid-Cont., Bruner	4	160
23-7-6	Mid-Cont., Elick	1	80
5-7-7	Mid-Cont., Smith	4	8,175
36-8-6	Mid-Cont., Wadsworth	7	835
	Total		8,730
26-8-6	Pine, Hoyecha	7	1,296
35-8-6	Pine-Phillips, Pattey	1	284
25-8-6	Prairie, Chilcoat	3	530
35-8-6	Prairie, Dungan	1	5
14-7-6	Prairie, Gibson	5	1,505
14-7-6	Prairie, Harris	4	810
2-7-6	Prairie, House	4	135
24-7-6	Prairie, Johnson	2	365
5-7-7	Prairie, Lustey	3	115
24-7-6	Prairie, Noppin	2	425
13-7-6	Prairie, Reed	1	1,030
14-7-6	Prairie, Tally	4	895
15-7-6	Prairie, Williams	2	687
26-7-6	Prairie, Wood	1	150
14-7-6	Prairie-Amerada, Sunny	6	1,545
1-7-6	Prairie-Pine, Coker	1	608
	Total		9,215
26-7-6	Prairie-Slick, Cudjo	1	240
24-7-6	Pure, Brinson	3	1,743
23-7-6	Pure, Cotcha	10	2,140
11-7-6	Pure, Harjo	4	1,232
11-7-6	Pure, Hollins	1	127
	Total		5,282
14-7-6	Relter-Foster, Bunyard	4	745
31-7-6	Relter-Foster, Ritter	1	12
	Total		757
36-8-6	Shaffer, Narcome	2	240
11-7-6	Shell, Caesar	1	0
26-7-6	Shell, Glass	1	0
23-7-6	Shell, Hotulke	4	555
32-8-7	Shell, Jeffries	1	10
13-7-6	Shell, Johnson	4	2,207
	Total		2,772
11-7-6	Sinclair, Blanton	1	292
36-8-6	Sinclair, Cosar	3	920
12-7-6	Sinclair, Haney	1	85
14-7-6	Sinclair, Tewee	2	1,125
24-7-6	Sinclair-King, Pompey	1	55
	Total		2,477
14-7-6	Skelly, Carl	2	1,714
13-7-6	Snowden-McSweeney, Tiger	2	620
31-8-6	Superior, Polutka	1	0
1-7-6	Superior, Soketheche	1	3
	Total		3
25-8-6	Texas, Brooks	1	0
1-7-6	Texas, Coker	3	130
11-7-6	Texas, Janey	6	1,075
	Total		1,295
23-7-6	Texas-Indep., Hotulke	4	1,155
22-7-6	Texas-Indep. H. Hotulke	2	1,755
	Total		2,910
1-7-6	Tidal, House	2	225
1-7-6	Tidal, Jackson	1	29
	Total		254
25-8-6	Twin State, Lowe	1	57
	Total Little River	330	77,490

Carr City Pool

S.T.R.	Company, farm—	Wells	Prod.
11-8-5	Barnsdall, Coker	6	3,885
14-8-5	Barnsdall, Fife	2	235
	Total		4,120
2-8-5	Carter, C. Coker	1	2,450
11-8-5	Empire, Cluck	5	3,443
10-8-5	Gypsy, Coker	1	85
14-8-5	Gypsy, Fife	1	13
	Total		98
10-8-5	I.T.I.O., Simpson	1	0
10-8-5	I.T.I.O., Tully	1	0
	Total		0
14-8-5	Magnolia, Killingsworth	1	5
11-8-5	Prairie, Billington	7	2,665
15-8-5	Prairie, Mitchell	1	0
	Total		2,665
11-8-5	Sinclair-Bean	2	1,000
11-8-5	Sinclair, L. Harjo	3	372
	Total		1,372
	Total Carr City	32	14,153

Maud

S.T.R.	Company, farm—	Wells	Prod.
1-8-4	Amerada, Ballard	1	175
7-8-5	Amerada, Felig	2	290
8-8-5	Amerada, Gossland	3	410
1-8-4	Amerada, Gravel	1	20
1-8-4	Amerada, Hallum	4	2,045
17-8-5	Amerada-Barnsdall, Wallace	3	250
20-8-5	Amerada-Hull, Green	2	260
	Total		3,450
19-8-5	Darby, Ketchum	1	0
7-8-5	Gypsy, Bourassa	4	32
18-8-5	Gypsy, Miller	8	577
	Total		659
18-8-5	Independent, Harding	5	680
16-8-5	I.T.I.O., State	1	0
18-8-5	Laurel, Billington	3	490
8-8-5	Magnolia, Billington	3	200
20-8-5	Magnolia, Green	1	487
	Total		687
18-8-5	Marland-Shell, Everett	1	229
18-8-5	Mid-Cont., Shelton	2	40
19-8-5	Phillips, Hudson	4	322
17-8-5	Phillips, Wallace	1	180
	Total		502
18-8-5	Pine, Lingerfelt	1	225
8-8-5	Pine, Smith	1	948
	Total		1,173
18-8-5	Prairie, Campbell	8	190
20-8-5	Prairie-White Eagle, Villines	1	105
	Total		295
18-8-5	Pure, Lindley	8	301
19-8-5	Pure, Urbansky	2	153
8-8-5	Pure, C. Wiley	4	2,020
	Total		2,479
19-8-5	Sinclair, Bellaire	9	940
7-8-5	Sinclair, Calvin	1	155
6-8-5	Sinclair, Lewis	2	115
	Total		1,210
18-8-5	Skelly-Margay, Lingerfelt	4	273
7-8-5	Texas, Calvin	7	490
12-8-4	Tidal, Dunn	1	70
18-8-5	Tidal, Everett	2	225
8-8-5	Tidal, Smith	1	220
	Total		525
7-8-5	Twin State, Calvin	2	315
8-8-5	Wilcox, Smith	3	1,209
	Total		1,524
	Total Maud	109	14,706

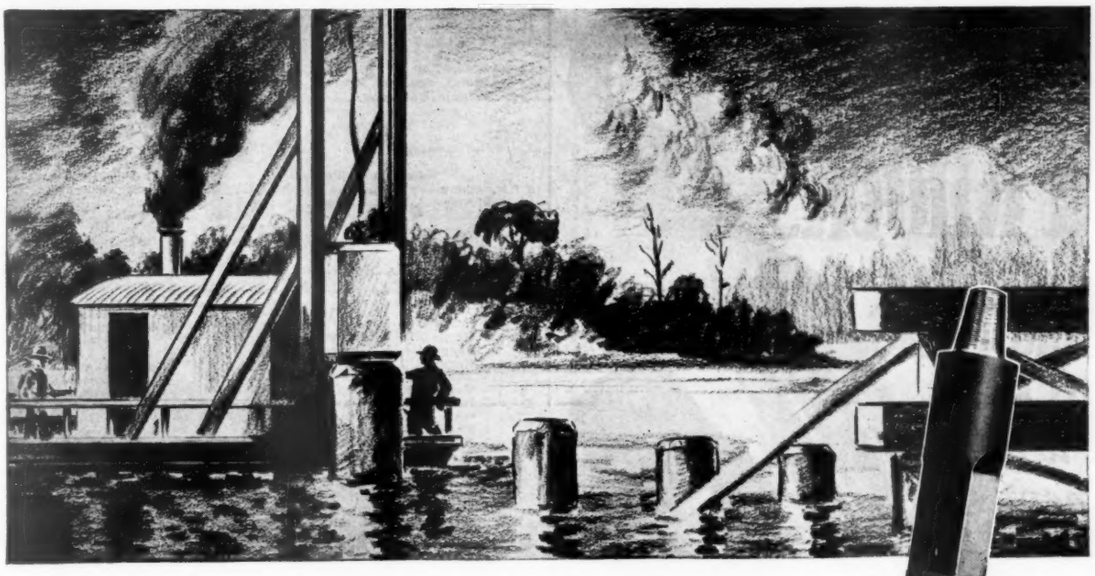
Mission Pool

S.T.R.	Company, farm—	Wells	Prod.
5-8-6	Amerada, Rice	2	1,345
18-8-6	Carter, Fuswa	3	2,730
8-8-6	Carter, Micco	2	183
9-8-6	Carter et al, Melissa	1	940
	Total		3,852
1-8-5	Darby, Judy	1	100
6-8-6	Gypsy, Baby	1	13
6-8-6	Gypsy, N. Barkus	6	3,120
7-8-6	Gypsy, S. Barkus	1	257
7-8-6	Gypsy, Doser	4	992
7-8-6	Gypsy, Hardy	5	377
7-8-6	Gypsy, Harjoche	3	190
8-8-6	Gypsy, L. Micco	2	75
8-8-6	Gypsy, S. Micco	1	115
5-8-6	Gypsy, Mission	5	1,972
1-8-5	Gypsy, Mosar	3	660
	Total		7,749
1-8-5	Independent, Lawson	4	2,084
7-8-6	Indep.-Kistler, Payne	2	2,890
	Total		4,924
7-8-6	Marland, Maines	4	1,212
7-8-6	McMahon, Harjo	2	790
7-8-6	Mid-Kansas, Moore	1	0
7-8-6	Minnehoma, Neal	2	460
6-8-6	Pine, Harjo	2	367
8-8-6	Pine, Micco	1	0
	Total		365
7-8-6	Prairie, Crain	1	462
6-8-6	Prairie, Melton	2	1,470
5-8-6	Prairie, Micco	1	10
6-8-6	Prairie, Townsend	1	275
18-8-6	Prairie-Gypsy, Owens	1	0
	Total		2,217
12-8-5	Shaffer, Weaver	1	1,121
7-8-6	Shell-Marland, Herndon	1	500
7-8-6	Shell-Papoose, Maines	7	1,775
7-8-6	Sinclair, Hardy	3	2,150
1-8-5	Sinclair-Lenox, Judy	1	125
	Total		2,270
12-8-5	Tidal, Nellie	2	235
8-8-6	Twin State, Hayes	2	2,065
6-8-6	Twin State, Judy	2	1,055
12-8-5	Twin State, Ripley	1	330
	Total		3,450
	Total Mission	85	32,331

Bowlegs

15-8-6	Amerada, Rasco	7	900
10-8-6	Atlantic, Baker	4	295
23-8-6	Atlantic, Fleet	3	130
13-8-6	Atlantic, Grayson	4	521
16-8-6	Atlantic, A. Jones	2	41
9-8-6	Atlantic, C. Jones	1	61
	Total		1,031
28-8-6	Barnsdall, McNac	1	24
11-8-6	Barnsdall, Murrow	4	360
	Total		384
15-8-6	Carter, Bowlegs	4	380
23-8-6	Carter, Burden	3	175
14-8-6	Carter, Harjoche	6	570
23-8-6	Carter, Hilly	3	240
11-8-6	Carter, Jones	4	357
15-8-6	Carter, Walker	4	350
23-8-6	Carter, W. Wise	11	1,330
	Total		3,402
11-8-6	Dixie, Lizzie	1	60
14-8-6	Empire, Lacey	6	245
23-8-6	Empire, Wise	2	155
	Total		397
22-8-6	Gypsy, Bowlegs	1	3
9-8-6	Gypsy, Bradley	1	2
10-8-6	Gypsy, Cumsey	4	580
13-8-6	Gypsy, Grayson	4	420
10-8-6	Gypsy, Harjoche	3	400
11-8-6	Gypsy, Jones	1	5
15-8-6	Gypsy, Walker	7	433
23-8-6	Gypsy, K. Wise	3	100
	Total		1,951
24-8-6	I.T.I.O., Barnett	2	154
23-8-6	I.T.I.O., Barnett-B	1	74
22-8-6	I.T.I.O., Billington	4	280
22-8-6	I.T.I.O., Bowlegs	10	1,260
13-8-6	I.T.I.O., Davis	4	145
13-8-6	I.T.I.O., Faye	8	1,065
16-8-6	I.T.I.O., Goforth	12	1,350
15-8-6	I.T.I.O., Livingston	10	1,310
11-8-6	I.T.I.O., Lizzie	3	226
15-8-6	I.T.I.O., Walker	8	764
12-8-6	I.T.I.O., Williams	1	134
15-8-6	I.T.I.O., Willmott	4	261
24-8-6	I.T.I.O., Work	1	40
24-8-6	I.T.I.O., Youngblood	2	98
	Total		7,261
13-8-6	Magnolia, B. F. Davis	3	456
13-8-6	Magnolia, M. Davis	1	6
10-8-6	Magnolia, Hammond	8	712
12-8-6	Magnolia, Rhoades	5	400
9-8-6	Magnolia, Vanbuskirk	4	440
	Total		2,008
22-8-6	McCullough, Bowlegs	2	185
10-8-6	Mid-Cont., Baker	4	171
12-8-6	Mid-Cont., Smith	6	615
	Total		786
15-8-6	Minnehoma, Bowlegs	1	102
23-8-6	Prairie, Gahagan	3	295
10-8-6	Prairie, Harber	8	1,740
11-8-6	Prairie, Jones G.	4	310
3-8-6	Prairie, Jones N.	1	207

THE WORLD'S MIGHTIEST BLOWS



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S.T.R.	Company, farm—	Wells	Prod.
12-8-5	Prairie, Templeton	5	1,820
23-8-6	Prairie, Whitney	4	400
	Total		4,792
14-8-6	Pure, Reed	14	2,103
11-14-8-6	Pure, Strothers D.	4	372
10-8-6	Pure, Strothers F.	7	2,100
	Total		4,575
14-8-6	Shaffer, Lacey	3	320
16-8-6	Shell, Taylor	5	60
16-8-6	Sinclair, Cumsey	4	785
11-8-6	Sinclair, E. Jones	6	718
14-8-6	Sinclair, Harjo	3	615
9-8-6	Sinclair, C. Jones	7	430
10-8-6	Sinclair, W. Taylor	3	482
10-8-6	Sinclair, M. Taylor	4	635
22-8-6	Sinclair, Walker	4	1,072
	Total		4,787
14-8-6	Texas, Reed	11	760
13-8-6	Tidal, Grayson	4	455
10-8-6	Tidal, Harjoche	6	860
	Total		1,315
	Total Bowlegs	307	35,028

Earlsboro Pool

S.T.R.	Company, farm—	Wells	Prod.
15- 9-5	Amerada, Anderson	2	361
4- 9-5	Amerada, Cowden	7	881
3- 9-5	Amerada, Rogers	2	40
	Total		1,282
13- 9-4	Atlantic-Gypsy, Delaware	1	0
18- 9-5	Atlantic-Sinc., Foreman	2	110
	Total		110
10- 9-5	Barnsdall, L. Brown	3	1,420
2- 9-5	Barnsdall, F. Bruner	2	175
10- 9-5	Barnsdall, N. Bruner	3	225
14- 9-5	Barnsdall, Cudjo	1	48
11- 9-5	Barnsdall, D. Davis	3	432
11- 9-5	Barnsdall, J. Davis	4	1,480
11- 9-5	Barnsdall, M. Davis	2	20
9- 9-5	Barnsdall, Gibson	7	1,060
15- 9-5	Barnsdall, Hearn	1	1
1- 9-5	Barnsdall, J. Ingram	7	130
10- 9-5	Barnsdall, S. Pack	4	122
10- 9-5	Barnsdall, Peters	3	50
1- 9-5	Barnsdall, Sango	2	1,225
15- 9-5	Barnsdall, Sebolka	1	210
11- 9-5	Barnsdall, Sullivan	1	8
10- 9-5	Barnsdall, M. Sullivan	2	18
12- 9-5	Barnsdall, Wasutke	3	620
	Total		7,244
6- 9-6	Burke-Greis, Wisner	2	525
1- 9-5	Burke-Greis, Mays	3	835
	Total		1,360
13- 9-5	Carter, S. Davis	3	285
6- 9-6	Carter, James	3	1,310
13- 9-5	Carter et al, Gilliam	2	1,340
	Total		2,935
2- 9-5	Continental, Kays	2	37
12- 9-5	Continental, Spencer	4	721
	Total		758
13- 9-5	Cosden, Anderson	1	4,136
12- 9-5	Empire, Barker	1	45
3- 9-5	Empire, Edmondson	2	50
8- 9-5	Empire-Amerada, Bullock	1	425
13- 9-5	Emp.-Marland, Anderson	1	452
	Total		982
10- 9-5	Gypsy, Bruner	4	1,707
11- 9-5	Gypsy, B. Carter	7	2,002
16- 9-5	Gypsy, Earl	1	18
5- 9-5	Gypsy, Hunick	2	1,292
31-10-6	Gypsy, Lottie	1	122
12- 9-5	Gypsy, Noble	4	1,252
10- 9-5	Gypsy, Peters	1	90
1- 9-5	Gypsy, Sango	13	1,832
16- 9-5	Gypsy, State	3	120
	Total		8,435
31-10-6	Independent, Alexander	1	0
10- 9-5	Independent, Bruner	3	212
10- 9-5	Independent, Sullivan	1	15
8- 9-5	Indep.-Darby, Knapp	4	1,730
11- 9-5	Indep. et al, Gaines	3	240
	Total		2,197
18- 9-6	Magnolia, Anderson	1	56
9- 9-5	Magnolia, Bryant	6	51
4- 9-5	Magnolia, Cowden	2	22
12- 9-5	Magnolia, Dixon	1	18
3- 9-5	Magnolia, Edmondson	1	4
30- 9-5	Magnolia, Germany	1	23
13- 9-5	Magnolia, Gilliam	2	4,709
11- 9-5	Magnolia, Holmesley	6	17
13- 9-5	Magnolia, Hyde	2	2,170
3- 9-5	Magnolia, Ingram	1	15
10- 9-5	Magnolia, Lena	3	40
24- 9-5	Magnolia, Moore	1	93
12- 9-5	Magnolia, Seay	9	333
10- 9-5	Magnolia, Simpson	4	239
11- 9-5	Magnolia, Sparks	6	78
12- 9-5	Magnolia, Sullivan	3	0
	Total		7,868
9- 9-5	Mid-Cont., McCumber	7	40
5- 9-5	Mid-Cont., Rogers	2	1,005
	Total		1,045
14 -9-5	Mid-Kansas, Anderson	1	35
14- 9-5	Phillips, Dunaway	1	20
24- 9-5	Prairie, Baker	6	2,150
13- 9-5	Prairie, Davis	3	725
3- 9-5	Prairie, C. Graham	2	15
10- 9-5	Prairie, O. Graham	4	800
6- 9-6	Prairie, James	2	0
11- 9-5	Prairie, Stidham	9	1,345
6- 9-6	Prairie-Skelly, Campbell	6	2,975
24- 9-5	Prairie-Whitney, Harjo	1	30
	Total		8,041
1- 9-5	Shaffer, Clark	3	170
17- 9-5	Shell, Bayliss	1	15
13- 9-5	Shell, Hearn	1	117
12- 9-5	Shell, Spencer	2	1,507
	Total		1,639
36-10-5	Sinclair, Alexander	1	0
18- 9-5	Sinc.-Atl., No. 1 Foreman	1	15
12- 9-5	Sinclair, Hollins	1	20
2- 9-5	Sinclair, Sango	4	1,425
	Total		1,460
1- 9-5	Skelly, Mays	4	1,385
6- 9-6	Skelly, Shepherd	4	1,751
12- 9-5	Skelly, Spencer	1	150
	Total		3,366
6- 9-6	Skelly-Atl., Cherry	4	405
6- 9-6	Skelly-Atl., Lottie	3	1,994
	Total		2,399
1- 9-5	Superior, Ingram	1	805
2- 9-5	Superior, Walker	2	1,457
	Total		2,225
2- 9-5	Texas, Anderson	8	140
10- 9-5	Texas, Brown	8	130
6- 9-6	Texas, James	2	190
5- 9-5	Texas, Rogers	5	1,390
10- 9-5	Texas, Wilmott	6	110
	Total		1,960
35-10-5	Tidal, Walker	3	1,550
9- 9-5	Tidal, Watkins	7	1,890
	Total		3,440
12- 9-5	Twin State, Baker	3	40
2- 9-5	Twin State, Hearn	2	60
	Total		100
	Total Earlsboro	305	63,170

Seminole Pool

S.T.R.	Company, farm—	Wells	Prod.
23-9-6	Amerada, Fixico	3	75
23-9-6	Amerada, Killing	4	480
23-9-6	Amerada, Rentie	3	410
	Total		965
35-9-6	Atlantic, N. Cudjo	3	420
24-9-6	Barnsdall, Carter	6	280
14-9-6	Barnsdall, Henry	2	290
34-9-6	Barnsdall, Jones	4	630
	Total		1,210
24-9-6	Carter, B. Carter	2	40
22-9-6	Carter, F. Carter	3	100
24-9-6	Carter, Creamer	1	20
35-9-6	Carter, R. Cudjo	4	140
34-9-6	Carter, W. Cudjo	1	20
27-9-6	Carter, Gilliland	1	120
23-9-6	Carter, W.E. Grisso	4	180
15-9-6	Carter, M. Grisso	1	120
14-9-6	Carter, G. F. Killing	4	70
23-9-6	Carter, M. Killings	12	3,800
13-9-6	Carter, Knapp	1	20
27-9-6	Carter, Lukes	5	850
34-9-6	Carter, Pounder	2	140
35-9-6	Carter, Simpson	2	170
34-9-6	Carter, Strothers	4	400
23-9-6	Carter, Vierson	2	40
	Total		6,280
25-9-6	Empire, Gross	2	70
34-9-6	Empire, Wilson	2	210
	Total		280
35-9-6	Gypsy, Butler	4	320
24-9-6	Gypsy, Carter	8	475
34-9-6	Gypsy, T. Cudjo	4	610
26-9-6	Gypsy, Fixico	7	670
25-9-6	Gypsy, Harjo	3	420
26-9-6	Gypsy, Wolfe	5	130
	Total		2,625
23-9-6	Independent, P. Fixico	3	420
25-9-6	Independent, Harjo	2	60
35-9-6	Indep. et al, Butler	3	760
26-9-6	Indep. et al, P. Fixico	5	210
26-9-6	Indep. et al, Jones	4	320
	Total		1,770
25-9-6	I.T.I.O., Allen	2	20
26-9-6	I.T.I.O., Bowlegs	12	2,160
25-9-6	I.T.I.O., Gooden	4	230
23-9-6	I.T.I.O., Harjo	3	40
24-9-6	I.T.I.O., James	2	120
24-9-6	I.T.I.O., Reed	1	90
	Total		2,610
22-9-6	King.-Sheil, Harjo	3	450
2-8-6	Magnolia, Cheparney	1	20
25-9-6	Magnolia, Franks	3	250
	Total		720
14-9-6	Mid-Cont., Rentie	9	540
24-9-6	Mid-Cont., Tayeche	7	130
	Total		670
27-9-6	Phillips, Strothers	2	80
35-9-6	Prarie, Cudjo	3	140
37-9-6	Prairie, Franks	6	1,020
35-9-6	Prairie, Giblet	3	1,420
25-9-6	Prairie, Gross	5	30
36-9-6	Prairie, Mason	1	60
13-9-6	Prairie, Spencer	1	20
27-9-6	Prairie, Strothers-A	8	1,910
1-8-6	Prairie, Tiger	1	40
	Total		4,740
26-9-6	Pure, Strothers-A	17	4,020
36-9-6	Pure, Strothers-B	4	680
34-9-6	Pure, Strothers-C	1	350
	Total		5,050
22-9-6	Shell, Harber	1	250
22-9-6	Shell, Lasley	2	40
	Total		290
13-9-6	Sinclair, J. Carter	2	60
35-9-6	Sinclair, Cudjo-A	6	660
25-9-6	Sinclair, Cudjo-B	4	440
22-9-6	Sinclair, Dicey	2	30
23-9-6	Sinc.-Trans., Fixico	4	420
	Total		1,810
35-9-6	Superior, Cudjo	4	160
15-9-6	Superior, Roble	1	10
	Total		170
14-9-6	Texas, Mayhue	1	20
2-8-6	Texas, Strothers	1	30
	Total		50
24-9-6	Tidal, J. Carter	4	360

S.T.R.	Company, farm—	Wells	Prod.
26-9-6	Tidal, Fixico	7	1,391
25-9-6	Tidal, D. Harjo	1	15
23-9-6	Tidal, T. Harjo	3	45
	Total		1,761
35-9-6	Turman, Cudjo	4	541
35-9-6	Turman, Grisso	1	0
34-9-6	Turman, Jones	4	1,130
	Total		1,671
	Total Seminole	276	33,024

Searight Pool

S.T.R.	Company, farm—	Wells	Prod.
4- 9-6	Amerada, Johnson	1	31
3- 9-6	Amerada, Strothers	2	335
	Total		366
5- 9-6	Barnsdall, Jackson	2	30
4- 9-6	Carter, Davis	6	680
3- 9-6	Carter, Frazier	6	820
2- 9-6	Carter, Kiker	1	17
26-10-6	Carter, Scott	1	12
10- 9-6	Carter et al, Jackson	1	0
10- 9-6	Carter, Stewart	1	3,405
11- 9-6	Carter et al, I.T.I.O.	1	85
11- 9-6	Carter et al, Strothers	1	1,220
	Total		6,306
4- 9-6	Gypsy, Cudjo	3	245
32-10-6	Gypsy, Nevins	1	353
	Total		598
32-10-6	Magnolia, Varnum	2	120
34-10-6	Mid-Continent, Grayson	4	27
13-10-6	Mid-Continent Salochie	6	775
32-10-6	Mid-Continent, Nevins	3	1,010
	Total		1,872
4- 9-6	W. B. Pine, Lulu	1	20
33-10-6	Prairie, Cannon	1	3
10- 9-6	Prairie, Carter	1	3
33-10-6	Prairie, Houck	1	5
32-10-6	Prairie, Hurford	1	440
32-10-6	Prairie, Kincaide	2	65
22-10-6	Prairie, Weimer	1	15
	Total		531
3- 9-6	Pure, Aldridge	4	1,070
3- 9-6	Shell, Strothers	4	214
3- 9-6	Sinclair, Polly	4	1,440
4- 9-6	Superior, Varnum	1	0
4- 9-6	Texas, Fleet	1	20
4- 9-6	Twin State, Varnum	2	112
4- 9-6	Wilcox, Chupco	7	221
	Total Searight	74	12,860
	Grand total	1,518	283,764

St. Louis

S.T.R.	Company, farm—	Wells	Prod.
20-7-5	Barnsdall, Stahl	3	553
25-7-4	Blackwell-Omar, Cherry	3	545
16-7-4	Darby, Youngblood	1	508
36-7-4	Empire, School land	1	200
25-7-4	Gypsy, Bruno	4	165
25-7-4	Gypsy, Collins	4	325
26-7-4	Gypsy, Dodson	4	199
23-7-4	Gypsy, LeClair	4	1,060
18-7-4	Gypsy, Roseman	3	1,000
20-7-5	Gypsy, Stahl	8	5,472
	Total		8,212
14-7-4	Home Gas, Town Lot	1	372
36-7-5	Independent, Blandin	5	885
19-7-5	Independent, Youts	8	11,625
	Total		12,510
26-7-4	Indep.-Darby, Freid	2	90
25-7-4	Indep.-Darby, LeClair	1	130
16-7-4	Indep.-Westland, Rhodd	1	145
	Total		365
18-7-5	I.T.I.O.-Sinc., Woodward	1	70
24-7-4	Inter-Ocean, Coley	1	25
23-7-4	Inter-Ocean, McGee	6	350
	Total		375
2-7-4	Irwin-Martin, Kelly	1	1,050
14-7-4	Magnolia, Banta	2	21
18-7-5	Magnolia, Brandenburg	3	1,125
26-7-4	Magnolia, Cherry-A	5	1,394
26-7-4	Magnolia, Cherry-B	3	231
20-7-5	Magnolia, G.W.Fyke-A	1	1,212
20-7-5	Magnolia, G.W.Fyke-B	2	618
20-7-5	Magnolia, Tull Fyke-A	1	91
20-7-5	Magnolia, Tull Fyke-B	2	2,198
29-7-5	Magnolia, Tull Fyke-D	2	261
19-7-5	Magnolia, Hembree	4	2,024
31-7-5	Magnolia, Nicholas	2	91
7-7-5	Magnolia, Pugh	1	14
35-7-4	Magnolia, J. M. Robbins	4	193
34-7-4	Magnolia, S. A. Wilborn	5	722
20-7-5	Magnolia, Chas. Youts	4	630
29-7-5	Magnolia, C. A. Youts	4	426
20-7-5	Magnolia, H. E. Youts	7	8,754
	Total		20,305
35-7-4	McCullough-Blackwell, Bruno	5	1,110
35-7-4	McCullough-Mid-Continent, Smith	6	840
35-7-4	Mid-Kansas, Getzleman	4	1,245
36-7-5	Mid-Kansas, Lunay	3	270
36-7-4	Minnehoma, Sims	1	0
29-7-5	Packard Oil, Church	1	380
20,23-7-4	Panther, Town Lot	2	250
27-7-4	Phillips, Cherry	2	195
34-7-4	Phillips, Lydick	1	0
20-7-5	Phillips, Stahl	4	1,060
	Total		1,245
35-7-4	Prairie, Desmond	4	150
35-7-4	Prairie, Ellison	4	540
29-7-5	Prairie, Gammon	8	3,670
36-7-5	Prairie, Hembree	4	6,504
29-7-5	Prairie, Linn	4	1,040
17-7-5	Prairie, Pugh	1	0
18-7-5	Prairie, Ramsey	1	0
17-7-5	Prairie, Rhodd	1	0
19-7-5	Prairie, Wolfe	4	3,025
19-7-5	Prairie, Youts	4	285
18-7-5	Prairie et al, Davis	4	510
18-7-5	Prairie-Maud, Nesbit	2	570
	Total		16,294
26-7-4	Pure, Dodson	2	109
26-7-4	Pure, Thomas	4	8,159
19-7-5	Pure, Thrailkill	1	123
	Total		8,391
23-7-4	Shaffer, Cherry	4	100
30-7-5	Shaffer, Tolon	4	612
	Total		712
21-7-5	Shell, Smith	1	86
24-7-4	Sinclair, Blandin	13	2,340
7-7-5	Sinclair, Brandenberg	3	2,395
26-7-4	Sinclair, Bruno	2	3,870
25-7-4	Sinclair, Gilbreath	2	1,560
29-7-5	Sinclair, Nadash	5	390
25-7-4	Sinclair, Nealy	5	300
25-7-4	Sinclair, Nealy-B	2	225
18-7-5	Sinclair, Nesbit	6	4,915
19-7-5	Sinclair, O'Kitchee	7	470
	Total		15,905
25-7-4	Texas, Cherry	4	3,210
26-7-4	Tidal, Smith	1	90
24-7-4	Westheimer-Daube, Freid	5	950
23-7-4	Westheimer-Daube, Garrett	2	140
	Total		4,370
	Small pumpers	88	1,949
	Total St. Louis	344	98,102

Pipe Line Telegraph Telephone and Radio Men Hold Convention

The Petroleum Industry Electrical Association, representing at least 150,000 miles of communicating systems owned and operated by the major natural gas and oil pipe line companies, recently held a most successful convention in the Mayo Hotel, Tulsa. The association, formed in 1928 at Fort Worth, Texas, is composed of representatives of most of the active oil and gas pipe line companies in the entire Mid-Continent area.

At the annual convention, matters pertaining to standardization of material in communication line construction, rental rates, future rights of way, transportation and other subjects relating to communicating systems from the main offices to the oil pumping and compressor stations and gaugers in the field were discussed and considered. The policy of the association is to work for the betterment of electrical and communicating systems of telegraph, telephone and radio for the members.

The following companies were represented at the convention: Prairie Pipe Line Co., Prairie Oil & Gas Co., Oklahoma Pipe Line Co., Shell Pipe Line Construction Co., Magnolia Pipe Line Co., The Texas Pipe Line Co., The Texas Pipe Line Co. of Oklahoma, Humble Pipe Line Co., Marland Oil & Refining Co., Pure Oil Co., Pure Oil Pipe Line Co. of Oklahoma, the Empire Companies, Sinclair Pipe Line Co., Standard Pipe Line Co. Inc., and Lone Star Gas Co.

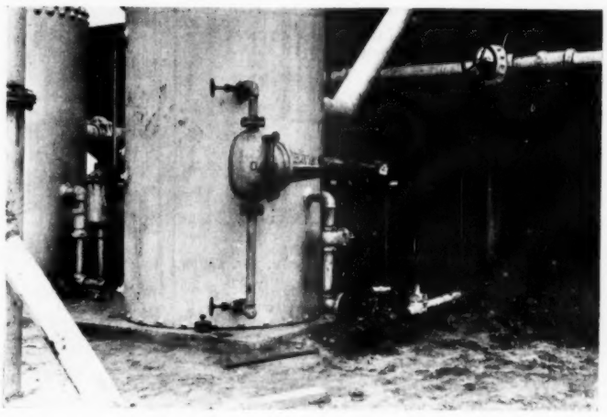
The convention closed with a banquet at the Mayo Hotel at which T. J. McMahon of The Texas Pipe Line Co. acted as toastmaster. Other officers of the association made short addresses.

All officers of the association were re-elected, complimentary to their active and successful efforts in aiding the growth of the association. They are: President, T. J. McMahon, of the Texas Pipe Line Co.; First Vice President, F. S. Leonard, of the Shell Pipe Line Corp.; Second Vice President, C. E. Foster, of the Oklahoma Pipe Line Co.; Secretary, H. E. Browne, of the Prairie Pipe Line Co., and Treasurer, W. T. Bulla, of the Empire Companies.

Directors of the association are: F. H. Groves, Pure Oil Co., Houston; Dick Weldon, Prairie Pipe Line Co., Tulsa; J. H. Borchers, Texas Pipe Line Co., Houston; H. C. Miller, Pure Oil Co., Pittsburgh; F. C. Baker, Marland Pipe Line Co., Ponca City; R. M. Bayless, Humble Pipe Line Co., Houston; A. J. Balcom, Magnolia Pipe Line Co., Dallas, and H. H. Watson, Magnolia Oil & Refining Co., Dallas.

WILLIAM GEORGESON DIES

CHATHAM, Ontario, Apr. 27.—William Georgeson died suddenly at Calgary, aged 70. He was active in oil development in the Canadian West, being connected with many pioneer companies. He was also interested in a tar sand development project at Fort McMurray.



Davis Float Box Control is entirely outside this accumulating tank

This simple, accurate control of fluid level in tanks and receivers brings all the control mechanism outside the tank where it is accessible. In the Davis Float Box the action is visible, the operation may be hand tested, the movable assembly may be balanced by counterweight to handle oil of any gravity. A large float gives ample power to operate the control valve. Facilities for inspection without disturbing the piping is a feature.

The Davis Float Box may also be had with remote control mechanism for conditions where the control valve is located at a distance from the tank.

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DAVIS VALVE SPECIALTIES

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WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 39)

Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur. ..... S. D. 510 ft. for csg.

CHILDRESS COUNTY

C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands ..... S.D. 4,340 ft.
The Texas Co.'s No. 1 Smith, 100 ft. each way from

COCHRAN COUNTY

Marland Prod. Co.'s No. 1 Slaughter-A, 330 ft. from W and 430 ft. from S lines, League 130, Carson County School land ..... Drlg. 1,225 ft.

COTTLE COUNTY

Explin. Co.'s No. 1 Richards ..... S.D. 3,535 ft. for csg.
Explin. Co.'s No. 4 Matador Land & Cattle Co., C Sec. 46, J. H. Stephens Sur. ..... S.D. 3,227 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Blk. H, W.&N.W. Sur... Drlg. 3,805 ft.

DONLEY COUNTY

Beaudoin et als' No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur. . Bldg. rig.
Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... Drlg. 980 ft.

GRAY COUNTY

Anderson et als' No. 1 Heitholt, C NE SW, Sec. 152, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,125 ft.
Amagray Oil Co.'s No. 2 Chapman, 330 ft. S and W of NE cor. W½ SW, Sec. 9, Blk. 26, H.&G.N. Sur. .... Location.
B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur. ..... S.D. 2,310 ft.
Barnsdall Oil Corp.'s No. 1 M. B. Davis, NW cor. W½ Sec. 9, Blk. 1, A.C.H.&B. Sur. ..... S.O. 2,820 ft; show gas 2,836 ft; S.O. 2,980 ft; drlg. 2,995 ft.
Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Set 8-in. 2,253 ft.
Champlin Ref. Co.'s No. 1 McLaughlin, 330 ft. S and W of NE cor. Sec. 33, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,186 ft.
Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.D. 2,740 ft.
Cockrell McElroy et als' No. 1 McConnell, 330 ft. each way from NE cor. W½ SW, Sec. 174, Blk. 3, I.& G.N.R.R. Sur. ..... Show gas 2,890 and 2,920 ft; drlg. 3,050 ft.
Cockrell McElroy Oil Co.'s No. 2 McConnell, 330 ft. S and E of NW cor. W½ SW, Sec. 174, Blk. 3, I.&G. N.R.R. Sur. ..... Location.
Constantine et als' No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H.&G.N. Sur. ..... S.D. 2,965 ft.; encountered salt water.
Danciger O. & R. Co.'s No. 1 H. K. Beck, 330 ft. S and E of NW cor NW, Sec. 28, Blk. B-2, H.&G.N. Sur... Cmtng. 12-in. 453 ft.
Danciger O. & R. Co.'s No. 4 Morse, 330 ft. S and E of NW cor. NW SW, Sec. 1, Blk. 26, H.&G.N. Sur. .... Location.
Danciger et als' No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. ..... Temp. abd.
Delaney and Associates Oil Co.'s No. 8 Jackson, 990 ft. S and 330 ft. E NW cor. E½ SW, Sec. 88, Blk. B-2, H.&G.N.R.R. Sur. ..... Cellar.
Dye & Gillette's No. 1 J. L. Noel, 330 ft. each way from SE cor. E½ NE, Sec. 187, Blk. 3, I.&G.N.R.R. Sur. .. Drlg. 2,340 ft.
Empire G. & F. Co.'s No. 1 R. M. Brown, C of SE, Sec. 238, Blk. B-2, H.&G.N. Sur. ..... Location.
Eslick & McKinney's No. 1 Mrs. Hopkins, 330 ft. from NE E½ NE, Sec. 84, Blk. B-2, H.&G.N. Sur. ..... S.D. 3,240 ft.
Sines & Reiger's, formerly Eslick et als,' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... Fish. pipe 3,206 ft.
Gardner Bros. and Collins' No. 1 Lincoln-Saunder, 330 ft. S and W of NE cor. W½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 1,535 ft.
Gardner Bros. & Collins' No. 2 Saunders, 350 ft. from N on center line of W 68 of W½ of E½ of J. G. Eustis Sur. ..... Location.
Gulf Prod. Co.'s No. 7-B Bowers, 990 ft. N and 330 ft. W of SE of 160-ac. lease, Sec. 89, Blk. B-2, H.&G. N. Sur. ..... Location.
Gulf Prod. Co.'s No. 1 Jackson, 295 ft. N and 305 ft. E of SW cor. W½, Sec. 62, Blk. B-2, H.&G.N.R. R. Sur. ..... Drlg. 1,360 ft.
Harrell's No. 1 McConnell, 330 ft. S and W of NE cor. E½ SE, Sec. 187, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 765 ft.
Independent O. & G. Co.'s No. 1 Holtenbeck, 990 ft. each way from NE cor. NE, Sec. 176, Blk. 3, I.& G.N.R.R. Sur. ..... S.D. 2,160 ft.
Magnolia Pet. Co.'s No. 4 J. B. Bower, 330 ft. S and 270 ft E of NW cor. Sec. 63, Blk. B-2, H.&G.N. R.R. Sur. ..... Drlg. 1,200 ft.
Marland Prod. Co.'s No. 2 Brown, 330 ft. N and W of SE cor. Sec. 32, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 1,715 ft.
McLain Oil Co.'s No. 1 Back, 1,000 ft. from W line and 330 ft. from N line, NW, Sec. 24, Blk. 25, H. &G.N. Sur. ..... S.D. 2,215 ft.; 1,000,000 ft. gas 2,-105-10 ft. and estimated 3,000,-000 ft. gas 2,202-08 ft.
McMan O. & G. Co.'s No. 1 Saunder, 330 ft. N and E of SW cor. E 80 ac. W½ of E½, J. G. Eustice Sur. ..... U.R. 10-in. 1,820 ft.
Midwest O. & G. Co.'s No. 1 Bower-B, 1,650 ft. from E and 330 ft. from N lines, Sec. 93, Blk. B-2, H. &G.N.R.R. Sur. ..... T.D. 3,297 ft.; P.B. 2,190 ft. and shot 60 qts. 3,069-3,163 ft.; C.O.
Nabob Oil Co.'s No. 2 Morse, 660 ft. from W line and 330 ft. from S line SW, Sec. 67, Blk. 25, H.&G. N.R.R. Sur. ..... Cellar; temp. abd.
Operators Oil Co.'s No. 1 Faulkner, 330 ft. N and E of SW cor. of W 60 ac., Sec. 30, Blk. B-2, H.&G. N.R.R. Sur. ..... Drlg. 2,688 ft.
Operators Oil Co.'s No. 7 Jackson, 330 ft. S and 270 ft. W of NE cor N½ NE, Sec. 88, Blk. B-2, H.&G.N. .. Drlg. 1,924 ft.
Phillips Pet. Corp's No. 5 Jackson, 330 ft. S and 990 ft. E of NW cor. S½ NE, Sec. 88, Blk. B-2, H.&G.N.. S.D. 238 ft.
Phillips Pet. Co.'s No. 1 Palmer, 330 ft. N and W of SE cor. Sec. 31, Blk. B-2, H.&G.N.R.R. Sur. ..... Cmtng. 8-in. at 2,750 ft.
Panhandle Ref. Co.'s No. 1 Saunder, 330 ft. S and E of NW cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. .... Drlg. 1,800 ft.
Panhandle Ref. Co.'s No. 2 Saunders, 330 ft. S and W of NE cor. E½ NE, Sec. 3, Blk. 1, A.C.H.&B. Sur. .. Drlg. 750 ft.
Scott Drlg. Co. et als' No. 1 Chapman, 330 ft. N and E of SW cor. S½ of NE, Sec. 69, Blk. 25, H.&G. N. Sur. ..... Cellar, and rig on ground.
Shamrock Pet. Co.'s No. 2 Chapman-A, 990 ft. E and 330 ft. from S lines S½ SW, Sec. 70, Blk. 25, H. &G.N.R.R. Sur. ..... Drlg. 2,645 ft.
St. Clair Oil Co.'s No. 1 Dial, 330 ft. S and W of NE cor. SE, Sec. 10, Blk. 25, H.&G.N.R.R. Sur. ..... Cellar.
St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R ..... S.D. 3,490 ft. with H.F.W.
St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S. D.
Southern Pet. Exp. Co.'s No. 4 McConnell, 330 ft. N and E of SW cor. NW, Sec. 174, Blk. 3, I.&G.N.R.R. Sur.. T.D. 3,212 ft; S.O. 2,960, 3,095, and 3,115-70 ft; flowed 805 bbls. first 15 hrs. from 3,205-12 ft.
Sun Oil Co.'s No. 1 Purviance, 330 ft. S and W of NE W 80 ac., Sec. 61, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,125 ft.
The Texas Co.'s No. 5 J. B. Bowers, 330 ft. N and 990 ft. E of SW cor. of E½, Sec. 89, Blk. B-2, H.&G. N.R.R. Sur. ..... Drlg. 2,645 ft.
The Texas Co.'s No. 6 Bowers, 270 ft. W and 330 ft. N of SE cor. E½, Sec. 89, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 400 ft.
The Texas Co.'s No. 7 Bowers, 330 ft. E and 990 ft. N of SW cor. E½, Sec. 89, Blk. B-2, H.&G.N. Sur.. Drlg. 1,100 ft.
The Texas Co.'s No. 2 B. Bull, 990 ft. S and E of NW, Sec. 2, Blk. B-2, H.&G.N.R.R. Sur. ..... Location.
The Texas Co.'s No. 2 Chapman-B, 990 ft. N and E of SW cor. Sec. 50, Blk. A-9, H.&G.N.R.R. Sur. ..... Location.
The Texas Co.'s No 6 Chapman-A, 330 ft N and 755 ft. E of SW cor. SE, Sec. 51, Blk. 25, H.&G.N. Sur. .... Drlg. 1,625 ft.
The Texas Co.'s No. 1 Faulkner, 330 ft. each way from NW cor. Sec. 29, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,055 ft.
The Texas Co.'s No. 2 Faulkner, 330 ft. each way from SW cor. Sec. 29, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,200 ft.
The Texas Co.'s No. 5 McLarty-A, 330 ft. S and E of NW cor. Sec. 2, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 1,516 ft.
The Texas Co.'s No. 2 McLarty-B, at center of J. M. Rose Sur. ..... Rig.
The Texas Co.'s No. 10 Saunders, 330 ft. N and W of Travis et als' No. 2 Back, 330 ft. each way from NW cor. E½ SE cor. Sec. 44, Blk. 25, H.&G.N.R.R. Sur.. Drlg. 1,610 ft.
Travis et als' No. 1 J. S. Morse, SE NW SW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... 30,000,000 ft. gas 2,592-2,610 ft.; light spray oil 2,740-45 ft.; increase at 2,790-92 ft; flowing 130 bbls. per day from 2,790-92 ft; T.D. 2,805 ft.
Wilcox-Pampa Oil Co.'s No. 6 Comb-Worley, 330 ft. N and 990 ft. E of SW cor. Sec. 60, Blk. 3, I.&G.N. R.R. Sur. ..... Drlg. 2,250 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County School lands; elevation 3,363 ft.; contract depth 5,000 ft. ..... S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 ..... T.D. 3,610 ft.; fish. csg.
Canadian River Gas Co.'s No. 10 Burns-A, 660 ft. N and 660 ft. E, Sec. 18, Blk. 2, G.&M. Sur. ..... Run. 8-in. at 3,140 ft.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 2 Ingerton-A, 1,650 ft. from N line, 1,071 ft. from E line, Sec. 41, H.&T.C.R.R. Sur.. Fish. 305 ft.
Gulf Prod. Co.'s No. 44 Dial, 330 ft. N and 325 ft. W of NE cor. Sec. 36, Blk. M-23, T.C.R.R. Sur. ..... Drlg. 2,020 ft.
Gulf Prod. Co.'s No. 45 Dial, 660 ft. S and 660 ft. W of NE cor. S½, Sec. 25, Blk. 47, H.&T.C. Sur. ..... Drlg. 1,950 ft.
Holmes et als' No. 1 Moore, 330 ft. N and E of SW cor. N½ E 80 ac., SE, Sec. 125, Blk. 4, I.&G.N. R.R. Sur. ..... Spudding.
Marland Prod. Co.'s No. 1 Johnson-C, 450 ft. S and W of NE cor. Sec. 5, Blk. 1, B.&B. Sur. ..... Run. 6-in. csg. 2,885 ft.
Marland Prod. Co.'s No. 1 Sanford-C, 783 ft. N and 230 ft. W of SE cor. N½, Sec. 79, Blk. 46, H.&T. C.R.R. Sur. ..... Drlg. 900 ft.
Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford-B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.
Phillips Pet. Co.'s No. 4 Johnson-Pulaski, 330 ft. from N line and E line of W½, Mary Whitley Sur. ..... Run. 10-in. csg. 835 ft.
Phillips Pet. Co.'s No. 5 Johnson Bros. (Florence), 330 ft. each way from S and E line of E½, Mary Whitley Sur. ..... Set 10-in. csg. 815 ft.
Phillips' No. 1 Sanford-Glass, 660 ft. S and E of NW cor. S 20 ac. of N 160 ac. of S 320 ac., Sec. 80, Blk. 46, H.&T.C Sur. ..... Location.
Phillips Pet. Co.'s No. 6 (Florence), 330 ft. each way from S and W lines, E½ ..... Rig.
The Texas Corp.'s No. 2 Moore, 990 ft. from N line and 330 ft. from W line SW, Sec. 125, Blk. 4, I.&G.N. Sur.. Set 6-in. csg. 3,004 ft.
Timms et als' No. 1 Moore, 330 ft. N and E of SW cor. S 40 ac. NW, Sec. 21, Blk. M-21, T.C.R.R. Sur. ..... Drlg. 3,025 ft.

KING COUNTY

The Texas Co.'s No. 1 J. H. Johnson ..... S.D. 4,300 ft.
Huff Oil Co.'s No. 1 Martin, 1,320 ft. from N line and 1,320 ft. from E line, Sec. 171, Blk. F, H.&T.C. Sur.. Rig.

LAMB COUNTY

Dan Freed et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... Drlg. 525 ft.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... S.D. 3,128 ft.
Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... S.D. 4,428 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small show oil 1,133-40 ft.; sand; fish. 4,167 ft.

MOORE COUNTY

Amarillo Oil Co.'s No. 2 Warrick, C S 160 ac., Sec. 92, Blk. 46, H.&T.C. Sur. ..... Fish. 2,120 ft.
Barnsdall Oil Co.'s No. 1 Harrison, 330 ft. from N line and 330 ft. from E line of S½ NE, Sec. 5, Blk. M-2.. Drlg. 1,425 ft.
Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W of NE cor. Sec. 1, Eustis Sur. ..... U.R. 8-in. csg. 2,910 ft.
Fritch O. & G. Co.'s No. 1 Lee Burns, CNE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. ..... Spudded and S.D.
Skelly Oil Co.'s No. 7 Armstrong & Byrd, 2,260 ft. S and 990 ft. E NW cor. J. N. Proctor Sur. ..... Cementing 6-in. csg. 3,060 ft.
Phillips Pet. Co.'s No. 1 Burnett, 330 ft. each way from NE cor. NE, Sec. 192, Blk. 3-T, T.&N.O. Sur... Drlg. 3,558 ft.
Phillips Pet. Co.'s No. 3-A Sneed, Jr., 1,600 ft. S and 430 ft. W of NW cor. J. N. Proctor Sur. ..... 3,070 ft; drlg. out cemented plug 6in. cemented at 3,060 ft.
Phillips Pet. Co.'s No. 1 Taylor, 330 ft. N and E of SW cor. E½ NW cor. Sec. 244, Blk. 3-T, T.&N. O. Sur. ..... T.D. 2,650 ft.; S.D. for completion of No. 1 Burnett.

MOTLEY COUNTY

Explin. Co.'s No. 5 Matador, C, Sec. 45, Blk. J-B, C.B. &C.N.G.R.R. Sur. ..... Drlg. 300 ft.
Explin. Co.'s No. 6 Matador, 330 ft. from N line and 330 ft. from E line, Sec. 132, Blk. M ..... Rig.
Matador Oil Corp.'s No. 1 Owen, C NE, Sec. 10, Blk. G B.&B. Sur. ..... Rig.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A.. Preparing to pull liner and U.R. 4-in. at 5,975 ft.

WHEELER COUNTY

Byrens et al's No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... Fish. csg. 2,920 ft.
Gibson Oil Co.'s No. 7 Bentley, 330 ft. N and W of SE cor. NW SE, Sec. 42, Blk. 24, H.&G.N. Sur. ..... Rigging up.
Lone Star Gas Co.'s No. 1 Turnbow, C NE SW Sec. 67, Blk. 17, H.&G.N.R.R. Sur. ..... S.D. 1,800 ft.
Lone Star Gas Co.'s No. 1 Griswold, C of NE of SE Sec. 1, Blk. 24, H.&G.N. Sur. ..... Drlg. 750 ft.
Lone Star Gas Co.'s No. 1 Ridenger, C S½ NW SW, Sec. 65, Blk. 17, H.&G.N.R.R. Sur. ..... Rig.
Magnolia Pet. Co.'s No. 1 Trostle, C S½ NW SW, Sec. 130, Blk. 23, H.&G.N.R.R. Sur. ..... Location.
Mudge Oil Co.'s No. 2 Hicks, C SE of NW Sec. 52, Blk. 17, H.&G.N. ..... Drlg. 1,231 ft.
L. W. Rook's No. 2-A Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Temp. abd.
The Texas Co.'s No. 2 Gordon, 660 ft. N and E of SW cor. NW, Sec. 91, Blk. 17, H.&G.N. Sur. ..... Location.

CENTRAL WEST FIELDS

(Continued from Page 62)

on the Elmer and Ida Petty, Section 6.

In Stark County, Lawrence Township, the Penn Oil & Gas Co.'s No. 1 George Brickel, Section 4, is reported good for 2,000,000 feet of gas at 3,350 feet. McClay Brothers found a dry hole on the N. H. Albright, Section 5, in the Clinton lime. F. A. Brendall and others are drilling on the John Neidert, Section 3, and Johnson and Stolz are working on the Steve Kocsio, Section 4, same township.

Fairfield County

In Fairfield County, Merle Myers and others are drilling No. 2 Joseph J. Johnson, Section 2, Rush Creek Township, and the Ohio Fuel Gas Co. is drilling No. 1-3,411 on the Cora Shaw, Section 5.

In Guernsey County, Wheeling Township, the East Ohio Gas Co.'s No. 1 Wilbur Wilson, Section 11, topped the Niagara lime at 3,287 feet, then topped the lime pay at 3,453 feet and went to a total depth of 3,459 feet, reported good for 50 bbls. The Logan Gas Co.'s No. 2-3,074 W. J. Alloway, Section 10, same township, is a nice gas well. The Niagara lime was topped at 3,470 feet; the Lima pay from 3,634-41 feet; total depth 3,645½ feet. The Preston Oil Co. made a location for No. 8 Sam N. Henderson, Section 2. Blackstone and others' test on the William Miles, Section 20, was dry at a total depth of 3,678 feet, the Niagara being topped at 3,510 feet, the Lime sand being found at 3,675 feet, and water at 3,678 feet. In Jackson Township, the Ohio Fuel Gas Co. has a dry hole in No. 3-3,478 on the Charles C. Wigginton, Section 15, in the Berea sand at 1,347 feet. Water was encountered at 1,315 feet. Same company made a location for No. 9 on the W. C. McCourt, same section. In Millwood Township, George Jewell and others made a location on the Thomas E. Henderson, Section 28.

In Morgan County, York Township, the Hopewell Fuel Gas Co.'s test on the B. F. Tharp, Section 22, is reported with an initial of 80 bbls. from a depth of 3,544 to 3,600 feet. In Malta Township, Rev. David Lang and others are drilling No. 7 on the Jonas Bingham, Section 29. In Marion Township, the Kemrow Co. is drilling No. 9 Edmund Parker, fractional Section 4. Ohio Fuel Gas Co. is drilling No. 1-3,481 on the Elza Edgerton, Section 16. In Penn Township, Henning Brothers are starting No. 17 C. J. Kennard, Section 2.

In Licking County, Perry Township, the Whitehill Oil Co.'s No. 8 on the A. A. Ashcraft, Section 9, is credited with an initial production of 12 bbls. Pure Oil Co.'s test on the Otis McKee, Section 5, Jackson Township, Muskingum County, produced an initial of 60 bbls.

INDIANA

It now seems that Perry County and southern Indiana are coming into their own and that many rigs will be drilling within a few weeks. During the past 25 years numerous attempts have been made to open an oil field, the most notable being the well drilled on the old Mason farm at the mouth of Deer Creek where a New York concern found a flowing well at something like 800 feet; the oil flowed and ran across the road into the river, at least such is the testimony of creditable people who were living near the farm at the time. The oil was found in what is known as the Barlow sand, which derives its name from the fact that oil was first discovered in this formation on the Barlow farm, a few miles south of Pellville, in Hancock County, Kentucky.

Several oil wells were drilled in the northern portion of Perry County at about the same time, some showing considerable oil and if there had been pipe line facilities possibly numerous pools would have been developed. A few shallow wells were drilled on Deer Creek recently, all of which are said to have shown that further testing is justified. All these experiments have tended to bring the county to the attention of operators and a number of the large companies have acquired extensive holdings with a view of drilling tests during the summer.

The latest event of importance to Perry and Spencer Counties is the arrival of the field force of the Eastern Gulf Oil Co., preparing to map an extensive area the company has under lease.

At present there are six drilling rigs on locations, among them being the Packard Oil Co.'s rig near Troy, the Crispen rig at Siberia, in the northwestern part of Perry County, the Glenn rig at Gerald, in the eastern portion of the county and the Packard Oil Co.'s rig on the Carlton, and on the Ray farms, near Troy.

Tests Planned

A number of contracts have been let for new wells and preparations have been made for tests at once. A test on the Welborn land, near the old Mason well, at the mouth of Deer Creek, along the Ohio River near the village of Dodd, will be drilled by P. E. Tichenor and others of Evansville; the contractors being Turner and Lewis of Bowling Green, Ky. The well to be drilled by Gabe and others of Owensboro, Ky., in the vicinity of St. Marks, is understood to be in charge of Hitchins and Robinson of Owensboro, Ky. C. E. Daugherty and others of Owensboro, Ky., are preparing to move a drilling outfit to their lease north of the well on the Devilez farm, near Troy, and also have announced they will drill an offset at once to the new well on the Carlton farm. The Wood Oil Co., Inc., of Kentucky, is preparing to move a rig to the farm west of the Carlton tract, near Anderson Creek. The well drilling on the Glenn farm, near Derby in the eastern part of Perry County, near the Ohio River and in Section 18-6-1, is down close around 350 feet; it is owned by two sons of Mrs. Eliza Glenn and some Evansville associates and is the first well to be drilled recently in Perry County by owners of the fee on which it is located. These parties purchased their own drilling rig and are doing the work by day labor. This well is located between two prongs of Poison Creek and is said to be on a structure worked out some time ago by Prof. Claude Malott of the Geological Department of Indiana University.

Another large concern has had two experienced operators working in Perry County for several months, and has now selected a location for the first well and is shipping in casing and a rig with which to test out the acreage. J. H. McClurkin is in charge of the engineering work and W. S. M. Hughes is the superintendent of the land and leasing department. The first well will be located in the vicinity of the McCallister School house on Route No. 37 and will be drilled to test the four sands in that portion of Perry County. Orville McGuiggan, of Robinson, Ill., is associated with the undertaking and a number of local business men of Perry County are also interested.

The Shell Petroleum Corp. made a big gas strike in a test 220 feet from the north line and 1,100 feet from the east line of the George Allen farm, in the northeast quarter of Section 22, Columbia Township, Gibson County. The well topped the sand at 1,425 feet and drilled only 5 feet into the sand, where the well produced under measurement 4,363,000 feet of gas.

In Clay Township, Pike County, the Mahutska Oil Co.'s test in the northeast corner of the Neal Lindy farm, in the southwest quarter of Section 31, produced 1,250,000 feet of gas at a total depth of 1,565½ feet. Sand was topped at 1,559½ feet and drilled 6 feet in when the gas was found. In Washington Township, same county, the Bement Gas Co.'s test in the northwest corner of the J. Fettinger farm, in the northwest quarter of Section 19, topped sand at 1,020 feet, where 3 feet of sand was found, the well showing a gauge of 150,000 feet, the total depth of the well being 1,026 feet.

Gem Oil Corp. abandoned No. 1 Henry Raibon farm, and No. 1 Sam D. Barrett farm, Section 8, Barton Township, Gib-

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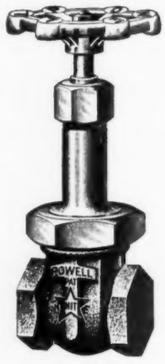

Fig. 375
Bronze "White Star" Gate Valve

UPON design, workmanship and materials depends efficient valve service.

It is because of these essentials that Powell Valves have been established as standards for oil well, field and refinery service.

For Powell Valves are designed to meet the ever changing demand created through new processes, higher temperatures and pressures, and the handling of volatile and hazardous liquids.

Fig. 460
Iron Body "Pilot" Gate Valve

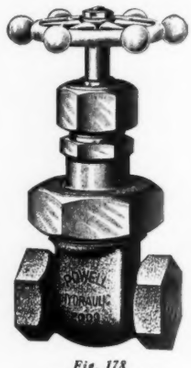

Fig. 178
Bronze Hydraulic Gate Valve

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CINCINNATI, OHIO

son County, as they were too light to pay.

Morris, Whitlock and others' test, 660 feet from the north line and 200 feet from the east line of the W. E. Maple, in the NE SW, Section 4, Gill Township, Sullivan County, was dry at 840 feet.

The Siosi Oil Corp. made an excellent strike in No. 6 well, 990 feet from the north line and 330 feet from the east line of the F. J. Williams, in the NE SW, Section 32, Prairie Creek Township, Vigo County, producing an initial of 150 bbls. the first 24 hours at a depth of 2,210 feet.

ILLINOIS

Another good producer has been added to the Allendale Field, by the completion by the Ridge Farm Oil & Gas Co.'s No. 4 well, 1,000 feet from the south line and 800 feet from the east line of the W. M. Price farm, in the southwest quarter of Section 14, Wabash Township, Wabash County, Illinois. Sand was tapped at 1,564 feet and drilled 11 feet into the sand to a total depth of 1,575 feet and shot with 30 quarts, the first 24 hours' production amounting to 100 bbls.

In the Casey Field, Johnson Township, Clark County, W. C. McBride, Inc., found a dry hole in No. 4 well, 1,000 feet from the south line and 200 feet from the east line of the J. Connelly farm, in the southwest quarter of Section 1, at a depth of 500 feet, being in shallow territory.

Another good producer has been added to the new St. Clair County Field, in the western part of Illinois. This is Morris and Yeager's No. 1 in the northeast corner of the C. Monsetta farm, Survey 181, Lot 40, of the Dupo Subdivision of Sugar Loaf Township, which produced an initial of 80 bbls. In the west half of Lot 49, same subdivision, Timberlake and Alspaugh's test on the H. Otten heirs' farm, is a duster. The Ohio Oil Co. found a dry hole in the northwest corner of the I. S. Gaskill, in the northwest quarter of Section 34, Sugar Loaf Township, same county, at 793 feet. The Mount Vernon Oil & Gas Development Co. found a dry hole in the southwest corner of the Matilda Becker, in the SW, Lot 130, same township, at a depth of 760 feet.

EASTERN FIELDS

(Continued from Page 59)

the Berea grit at No. 7,239 on the W. R. Goff farm. In Center district, Calhoun County, C. S. Lewis & Co. have a Salt sand gasser on the George D. Starkey farm. In Sheridan district, W. S. Dailey & Co. have drilled down No. 1 on the Robert E. Maze farm. It is a gasser in the Big Injun sand.

In Ripley district, Jackson County, the H. F. Parsons Oil & Gas Co. has completed a test on the Joseph W. Coast farm. It is a light gasser in the Berea grit. In Center district, the Hope Natural Gas Co.'s No. 776 is dry in the Big Injun sand and abandoned.

Starting and Drilling

On Mud Lick Run of Leatherwood Creek, Big Sandy district, Kanawha County, the United Fuel Gas Co. has the rig completed for No. 2,594 on the Lewis heirs' farm. In New Milton district, Doddridge County, the Hope Natural Gas Co. has started to drill on the W. H. H. Douglass farm. In Grant district, Travis Brothers are due in the Big Injun sand on the John Adams farm. In Grant district, Ritchie County, Rexroad & Co. are rigging up on the G. B. Rosson farm. In Williams district, Wood County, Athey & Co. have a rig up on the A. C. Athey farm. In Union district, Ritchie County, the Hope Natural Gas Co. has made a location on the G. P. Zinn farm. In Troy district, Gilmer County, C. M. Bennett & Co. are hauling rig timbers to a location on the Allen Burton farm.

In Geary district, Roane County, the Hollywood Oil & Gas Co. is building a rig on the Alex White farm. In Sherman district, McIntosh & Miller have started to drill on the E. E. Miles farm. In Lee district, Calhoun County, the Calhoun Oil & Gas Co. is rigging up on the L. G. Garrett farm. In Center district, L. F. Bickel has started to drill on the R. M. Marshall farm. In Sherman district, C. B. Lewis has a rig up on the Elliott-Proudfoot farm. In Lee district, the United Fuel Gas Co. has made location on the James R. Roberts farm.

In Grant district, Ritchie County, Rexroad & Co. have rig material at a location on the G. B. Rosson farm. In Williams district, Wood County, Gordon & Ekas have drilled a test on the Clara McDonald farm to a depth of 1,672 feet and shut down. On Leatherwood Creek, Big Sandy district, Kanawha County, the United Carbon Co. has started to drill No. 20 on the Osborne farm, 1,400 feet north of No. 13. On Mud River, Grant district, Cabell County, the Harshbarger Oil & Gas Co. has a rig completed on the C. & C. Railway property. In the same district, the same company has started to drill on the G. W. Johnson farm. In Jefferson district, Kanawha County, the Charleston-Dunbar Natural Gas Co. has the rig completed and started to drill on the Addie Wisman farm.

On Plum Run, Murphy district, Ritchie County, Weinrick & Snyder have a rig up on the Zack Weinrick farm. On Hughes River, same district, R. B. & R. Oil Co. has a rig completed on the J. B. Rogers farm. On Robinson Run, McClellan district, Doddridge County, J. W. Johnson & Sons have a rig up on the Craig-Dudley farm.

On Lee Creek, Elizabeth district, Wirt County, Porter Abbott has a rig completed on the Alonzo Daniels farm. In the same district, on Reedy Creek, Harry O'Neil, Athey and others have started to drill on the J. A. and Carrie Rathbone farm. In McKim district, Pleasants County, Charles Hastings and others have started to drill on the Sol Robinson farm. In DeKalb district, Gilmer County, the McCall Drilling Co. has started to drill deeper its second test on the Riddle Brothers farm.

In Grant district, Doddridge County, the South Penn Oil Co. is drilling No. 33 on the J. B. Duhurst farm. In Green district, Wetzel County, R. H. Worden and others have a rig up on the Uriah Ice farm. In Clay district, Monongalia County, the Carnegie Natural Gas Co. has a rig up on the R. S. McCord farm. In the same district, the Philadelphia Oil Co. is drilling a second test on the Jesse H. Headley farm. In Butler district, Hancock County, Jesse Miller has a rig up on the Frederick Campbell farm. In the same district, John J. McIntosh also has a rig up on the Freshwater heirs' farm.

SOUTHWEST PENNSYLVANIA

In Gilmore Township, Greene County, the Peoples Natural Gas Co. has a gasser in the Big Injun sand at No. 3 on the May McNary farm. In the same district, the Natural Gas Co. of West Virginia drilled deeper a test on the H. Taylor farm. It is dry in the lower sands.

In Aleppo Township, the Manufacturers Light & Heat Co. is drilling tests on the Samuel Chambers, Peter Henry, J. S. McCormick and A. and S. E. Rutan farms. In Springhill Township, M. W. Bissett is drilling on the T. J. Bissett farm. In Center Township, Frank Miller & Co. are fishing at 1,660 feet on the A. H. Cole farm. In Aleppo Township, the Dunmar Oil & Gas Co. is drilling deeper on the William Loar farm.

In Dunkard Township, Greene County, the Greensboro Gas Co. completed at a total depth of 3,350 feet a second test on the Mary Stewart farm. It is a gasser good for 500,000 feet. In the same township, the Convex Glass Co. has completed a gasser good for 300,000 feet on the George Miller farm.

In Perry Township, Greene County, the Carnegie Natural Gas Co. has drilled down from the Big Injun to the Bayard sand its old No. 1 on the Grant Fox farm. It is a gasser in the lower formation good for 300,000 feet. In Greene Township, J. L. Garard has completed a test on the Margaret Langarecker farm.

It is a light pumper in the Dunkard sand.

In East Finley Township, Washington County, A. V. Lewis and others have completed a test on the J. B. Montgomery farm. It is a light gasser in the 30-foot sand. In the Hookstown district, Ohio Township, Beaver County, L. Reed has completed a light gasser on the H. S. Todd farm.

In West Strabane Township, Washington County, E. H. Tague & Co. are due in the sand on the J. M. Pollock farm. In the same township, the Wasco Fuel Co. and others are fishing on the E. K. Lewis farm.

KENTUCKY-TENNESSEE

(Continued from Page 59)

fin Counties, which produced 25 bbls. the first 24 hours from the Weir sand. In District 25, same counties, Ralph Stafford and others' test on the Harvey M. Rice is a duster, as is the same parties' test on the J. A. Williams, same district. In District 27, same counties, Wagner and Matthews' No. 3 Fairchilds heirs produced 10 bbls., and Baldwin and Morgan's No. 4 produced but 2 bbls., on the Nancy Vandepool farm.

In the Irvine Field of Estill County, the Superior Oil Corp.'s No. 1 on the Celmer & Park property, District 18, is a 10-bbl. pumper, and same company's No. 4 Simp Horn, in District 7, pumped 2 bbls.

In Wolfe County, A. Gerard and others' test on the Bush heirs, District 20, pumped 10 bbls. initial.

In the Monticello Field of Wayne County, the Superior Oil Corp.'s No. 39 on the Burnett heirs, District 2, pumped 2 bbls., and George A. Hook and others' test on the Owen Rector, District 13, was dry.

The Gate City Oil Co. is due to complete No. 7 on the John and Patsy Marcum lease, District 7, Estill County. C. G. Sproal is also nearing the pay on the John Argrove, District 10, same county.

J. C. Blair and others are due to complete No. 11 on the J. F. Gregory, District 5, Wayne County.

Week's Work

A summary of the week's work in the Kentucky fields shows 22 completions, 16 producers with an initial production of 754 bbls., 5 dry holes and 1 gas well.

County—	Comp. wells	Oil Prod.	Dry	Gas
Ohio	7	390	1	1
Johnson-Magoffin	5	37	2	0
Daviess	3	100	1	0
Estill	2	12	0	0
Wayne	2	2	1	0
Muhlenburg	1	200	0	0
Wolfe	1	10	0	0
Allen	1	3	0	0
Total	22	754	5	1

WESTERN KENTUCKY

Indications are that the deep well drilled by Miller and Damron on the Hamilton farm, in the extreme western part of Daviess County and west of St. Joseph, reported as looking dry, may yet make a small producer. This well is far from production and was drilled to a total depth of 2,500 feet, but nothing was found in the lower formations, although there was a showing in the Jett sand at 1,480 feet that indicates a commercial producer and the only reason it was drilled below the Jett was that the owners wished to make a deep test. The hole will be plugged back to the Jett as the owners think it will make around 75 bbls. initial from that formation, but the question is whether it will hold up when pumped. The firm will not start another well until this one is given a thorough testing and should it hold up it will mean many more tests.

The bringing in of a new well on the big Keith land in Ohio County extends the producing field a considerable distance although there are 10 other producers on the land. It makes quite a number of almost sure locations to drill, being in the vicinity of the Hamilton and others' productive farms in the eastern portion of the Ambrose-Weller Pool.

Ohio County Wells

The best of the late completions in the Hartford area of Ohio County is Hupp, Duff and others' No. 5 on the L. Trodgen lease, in the Bartlett Pool, southwest of Taffy, reported with an initial production of 200 bbls. No. 4 same farm, produced 180 bbls. initial.

James C. Ellis drilled in his No. 11 on the B. F. Keith farm, southeast of the Ambrose-Weller Pool, and reported better than 100 bbls. initial.

H. L. Ogle and others drilled in a second test on the Payton Royal lease in the Friendship Church area of the county, finding 23 feet of sand and reported showing for an excellent well. Some estimate it at 150 bbls. and others at 50 bbls. The sand was found at 700 feet.

The Armistead Oil Co. brought in a gas well with a volume of 500,000 feet in No. 3 on the R. R. Kelley in the Friendship Chapel area.

Victor Oil Co. set a string of 460 feet of casing, got sand from 484 to 491 feet and went to a total depth of 502 feet in No. 3 on the Jess L. Ralph 60 acres, in the Adaburg area, doing 10 bbls.

Ray Bigler and others' second test on the George Bourman lease, in the Whittaker Pool, came in a duster at 575 feet.

New Domain Oil & Gas Co.'s No. 7 F. L. Royal farm, in the Friendship Church area, is rated good for 30 bbls.

Daviess County Wells

Wade and Moore's No. 5 on the E. L. Baird farm, in the Jones Pool of Daviess County, is reported at 60 bbls. initial, while No. 4, same lease, is a 40-bbl. producer.

James C. Ellis drilled in a duster in No. 3 on the Tate Howard farm. No. 4, same farm, is under way.

The Ohio Oil Co.'s No. 1 R. O. Kennedy farm, 2½ miles south of Greenville, in Muhlenburg County, is reported good for 200 bbls. initial.

In the Gainesville Field of Allen County, Snowden-McSweeney Co.'s No. 22 on the W. B. Tabor farm, is good for 3 bbls. at 495 feet.

Field Pickups

Cumberland Petroleum Co. is drilling on the Chancellor farm, in the Salmon Pool, of Daviess County.

C. E. Daugherty and others are drilling a second test on the Burdett farm, east of Deanfield, in Ohio County. The Wood Oil Co. is starting No. 3 well on the R. F. Sands farm, in the Red Hill area of Daviess County.

The Jetsan Oil Co., a local concern at Owensboro, is drilling No. 4 on the Hinton 149 acres, in the Jones Pool, of Daviess County, considered one of the best properties in the county. The contract work is being done by R. W. McMahan and others, and six additional wells will be drilled, making a total of nine on the lease. C. C. C. Oil Co. is drilling No. 5 on the Little Hinton farm, in the same pool. Petroleum Co. is drilling a second test on the Hansford heirs, in the Utica Pool. Pops Development Co. is starting No. 6 on the Bunk Taylor in the Burton Pool.

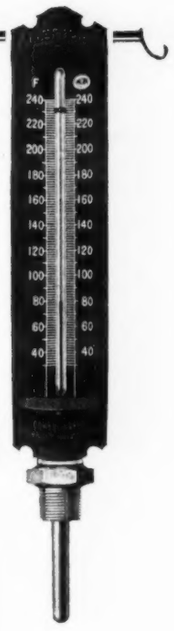
The Ohio Oil Co. is drilling on the G. A. Holland 175 acres, in Ohio County. C. C. C. Oil Co. is drilling No. 1 Richardson farm, Daviess County.

New Domain Oil & Gas Co. is drilling No. 8 F. L. Royal farm, in the Friendship Chapel area of Ohio County.

Paul Goldberg and Ray Young of Owensboro have returned from a scouting trip to East St. Louis to look over their holdings in St. Clair and adjoining counties. They hold leases on a block of 2,000 acres which will be given a test in a very short time.

Paul F. Dahlgren, of Bartlesville, Okla., will develop the Jennie Wilson heirs' 1,261 acres, known as the Bon Harbor farms, if the courts will give the guardian permission to lease. Mr. Dahlgren will agree, according to report, to drill a well in 90 days from March 15, and the lease shall continue in existence for 15 months, except oil or gas, or both are found in sufficient quantities to justify development.

Alberson, Ramey and others drilled a dry hole on the Myrtle Lyons farm, in the northern part of Hancock County across the Ohio River from the Packard Oil Co.'s wells on the Ray farm in Spencer County, Indiana.



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CANADIAN FIELDS

(Continued from Page 50)

in Calgary to act as field superintendent in charge of the rotary drilling campaign to be launched by Calmont Oils, Ltd. He is being followed to the Turner Valley field by a dozen rotary drillers, who will supplement men secured in the field.

Regent Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, has been drilled to 6,905 feet, 173 feet in the lime, and is being given another production test. A production of slightly over 100 bbls. a day is indicated, which may be increased as the well cleans itself out. Regent's No. 2, same LSD, has derrick up and will likely spud in about May 1. Two additional tests will be drilled later on the original Regent property.

McLeod Oil Co.'s No. 1, LSD 16, Section 1-20-3w5, has been brought back into production with a shot and is reported making slightly over 100 bbls. from the deep lime at 3,915 feet.

Makes 100 Bbls. a Day

Vulcan Oils' No. 1, LSD 11, Section 13-20-3w5, is again in production, making 100 bbls. a day from the lime, after drilling 3 feet alongside the lost tools.

New McDougall-Segur Oil Co.'s No. 2, LSD 14, Section 12-20-3w5, is drilling 217 feet in the deep lime at 5,275 feet. Rumors that the well was off structure are contradicted by government officials.

Spooner Oils' No. 2, Section 24-20-3w5, is 118 feet in the lime at 5,190 feet, blowing by heads and forcing oil out of the hole several times a day. Pressure is reported heavy in proportion to the volume of gas, though gas is increasing.

Great West Oils, Ltd., has purchased from Cobb & Warren 160 acres in NW Section 35-19-3w5, offsetting the New Black Diamond well on the north and Outwest Petroleums' No. 1 on the south. The company has also secured 1,000 acres on structures west of Turner Valley. Union Drilling Co. has contract for Great West's No. 2 in NW Section 35-19-3w5, to spud in this spring.

Mayland Oil Co.'s No. 1, LSD 10, Section 17-19-2w5, is drilling in shale at 5,358 feet, and apparently close to the lime. This test had what looked like a commercial production of light crude in the Home sand at 4,760 feet, but owing to the big strike in Home's No. 1 this was cased off for a test of the deeper horizon. Imperial Oil, Ltd., has arranged to take the Mayland production, and it is reported the latter is negotiating for a drilling arrangement similar to others made by Imperial in connection with acreage in the south Turner Valley.

Sunlight Oils, Ltd., has secured 60 acres south of the Mercury wells, and has timbers ordered and cellar dug for its No. 1. A. H. Mayland is president of the company. Sunlight's No. 2 will likely be drilled in the Jumping Pound district, where the company has secured 80 acres. Spray Oils' No. 1, LSD 9, Section 5-19-2w5, has spudded in, adjoining Mercury's No. 1 on the west. A heavy duty standard outfit is being used.

Dixie Oils, LSD 8, Section 11-20-3w5, is reported to have derrick timbers on the ground and cellar dug for a test. United Oils' No. 4, LSD 2, Section 24-20-3w5, is at 5,385 feet swedging the pinched casing preparatory to getting out a string of tools lost when the derrick burned. About 100 bbls. of oil have been recovered. Outwest Petroleums, LSD 5, Section 35-19-3w5, is reported rigged up.

Rigging Up

Commonwealth Petroleums' No. 2, LSD 7-8, Section 9-19-2w5, is reported rigging up. Homestead Oils' No. 1 is erecting derrick for a test about a half mile south of Home's No. 1.

Wellington Oil & Gas Co. has secured a 10-acre lease in LSD 1, Section 20-19-2w5, 1¼ miles south and slightly east of Home's No. 1 producer, and has cellar dug for its No. 1 test, and is moving in timbers and outfit. Oil Drillers, Ltd., has the contract and George Snyder will handle the drilling.

Alberta Pacific Consolidated Oils' No. 1 has been tentatively located in LSD 5, Section 20-19-2w5, west of the Home acreage.

Roy Widney and associates have secured part of the New McDougall-Segur Oil Co. acreage north of British Dominion's No. 2, in Section 12-20-3w5, and will spud in about June 1.

Near Boundary

Ko-Top Oils, Ltd., of Calgary which has a location on the Red Coulee structure near the international boundary has located No. 2 test in the South Turner Valley in Section 28-18-2w5, south of Sterling-Pacific's No. 1, where it has 40 acres. The company has also secured 20 acres in the north end, 20 acres in the New Black Diamond section and 20 in the Waite Valley area, but for the present will concentrate on its Red Coulee and No. 2 tests. Marland Oil Co. is digging cellar for its Nos. 1 and 2 tests in N half Section 27-18-2w5, south of the Sterling-Pacific test.

Calgary & Edmonton Land Co. is reported negotiating contracts for development of its oil acreage in southern Alberta. The company holds an aggregate of 1,200,000 acres in southern Alberta.

Mill City Oils, Ltd., held its annual meeting at Calgary recently when the following officers were elected: President, John H. Braseth; vice president, M. P. Boyd; directors, William H. Neermann, P. T. Treanor, J. S. Brown.

In the Waite Valley area, Richfield Petroleums' No. 1, Section 35-20-3w5, has all equipment on the ground and is rigging up. It is reported interests associated with Stellar Oils, Ltd., will develop 150 acres subleased from Waite Valley Holdings, Ltd., by J. I. McFarland and P. Burns, in the same area.

Herron Petroleum, Ltd., is moving boiler and derrick timbers to location on the Elbow River 30 miles west of Calgary.

Texas & Pacific Oil Co. has secured 80 acres on the New Black Diamond structure, north of Turner Valley, and will start a test before June 1. An additional 1,000-acre block has been secured on the Wabash structure, Morley Reserve area.

Located Test

Neptune Oils, Ltd., has located a test on the Paramount structure in LSD 5, Section 30-19-4w5, and will probably start work on derrick next month. Officers include: President, Donald Shoo; vice president, A. C. Galbraith; managing director, James Aiello; secretary-treasurer, James Ogilive; directors, Charles Curante, J. Fish, James Jackson. Gas is looked for between 700 and 1,000 feet, and the main oil horizon within 3,000 feet. The structure is about 25 miles west of Okotoks.

Cartier Oils, Ltd., will drill on the Monarch structure west of Olds and north of Cochrane.

In the Aldersyde district, High River Oilfields' No. 1, LSD 6, Section 34-18-29w4, is rigging up and will spud in before May 15. Ranchmen's Oil & Gas Co.'s No. 1, LSD 16, Section 13-20-29w4, is drilling below 3,165 feet with slight traces of oil. Twin Dome Oil Co., financed by High River and Montana interests, will drill a test on the same structure.

In the Pincher Creek district, it is reported Alberta Gas & Fuel Co.'s No. 3 Doherty, Section 11-6-2w5, is finishing a dry hole, but that, following extensive core drilling, a fourth test will be located.

In the Skiff Field, southern Alberta, Imperial-Devenish's No. 3, LSD 11, Section 11-5-14w4, while drilling, bailed from 35 to 40 bbls. a day. Lion's Gate Oil Co. of Vancouver has closed its contract with O. G. Devenish covering acreage on the Skiff structure, and will start work in SE SE Section 33-16-15w4 at once. O. G. Devenish and associates have ordered equipment and materials for an independent test on the Devenish acreage.

On the Beaver Dome structure, Milk River Oils, Ltd., is contracting for a test in Township 2-11w4. Madison Oils, LSD 10, Section 24-2-11w4, is making around 5,000,000 feet of gas between the 10 and 12-inch. This gas will be used in the boilers.

West of Coutts, Ko-Top Oils, Ltd., is hauling timbers for its derrick in SE Section 2-1-17w4, on the Red Coulee structure.

Bassano Area

In the Bassano area, Hudson's Bay-Marland Oil Co., Section 23-17-18w4, is moving in equipment. The test will spud about May 15. The structure was core drilled last season. In the Champion district, Hudson's Bay-Marland Oil Co., Section 9-16-23w4, is reported spudding. Vulcan Oils, Ltd., of Calgary has filed on some 500 acres in the Kirkcaldy area adjacent to the Hudson's Bay-Marland holdings.

In the Wainwright Field, east central Alberta, Wainwell Oils' No. 4 is rigging up. Sasko-Wainwright Oil & Gas Co.'s No. 1, LSD 1, Section 19-45-6w4, is running production to the Gypsy refinery. The latter is also taking production from the Edmonton-Wainwright Oils' No. 1 and British Petroleums' No. 3-B, the three wells making around 100 bbls. a day aggregate. Wainwright West Oil, Ltd., of Toronto has secured acreage adjacent to Wainwell Oils, Ltd., and is planning to put down four wells this summer, including one deep test. Wainwright Petroleums, Ltd., has outfit on the ground for a test in LSD 6, Section 30-45-6w4, to spud in about May 10. Two additional tests are planned for this season. Capital Royalties, Ltd., has secured 17,000 acres of leasehold on the Wainwright structure and is arranging for an early test.

On May 14, the Advisory Tariff Commission at Ottawa will hear an application by the Crude Petroleum Association of Canada for the restoration of the government bounty formerly paid on crude petroleum produced in Ontario.

The memorandum points out that Canada, one of the world's earliest oil producing countries, has suffered an eclipse in oil production. In 1867 a tariff of 6 cents per imperial gallon was placed on crude petroleum, a tariff of 4 cents having been previously imposed since 1864 to protect the then prolific Canadian fields from the competition of Pennsylvania wells. From 1867 to 1904 crude petroleum carried a tariff, but in 1904 petroleum heavier than .8235 specific gravity at 60 degrees Fahrenheit was transferred to the free list, to help the Canadian refining industry. At that time, the bounty, amounting to 1½ cents an imperial gallon, was established to compensate the Canadian producers.

In 1923, when extensive oil discoveries seemed likely in Alberta, the petroleum bounty act was repealed, on the ground that a continued bonus with largely increased production would be too severe a drain on the national treasury. The bounty, at first cut in half, finally lapsed on July 1, 1925.

The western Ontario producers state that the oil production in western Canada is practically all lighter than .8235 specific gravity and that a bounty is necessary to allow the continued profitable operation of the old producing wells in southwestern Ontario.

LOUISIANA-ARKANSAS

(Continued from Page 46)

in Section 22-21-10. Ohio Oil Co. made location for No. 43 Bodcaw in the C NW SW Section 24-21-10.

Sarepta and Shongaloo — Magnolia Petroleum Co. is coring at 2,653 feet on No. 1 Adkins, Section 4-22-9, and at 3,105 feet on No. 1 Cook, Section 2-22-11.

EAST TEXAS

Harrison County

Eureka Natural Gas Co. is drilling No. 1 Cox-Timmins, R. W. Bedford Survey, at 1,936 feet. C. H. Lyons and others' No. 1 State Line-Furrh, Joel Lipscomb Survey, is washing to bottom to deepen, total depth 944 feet.

Panola County

Eureka Natural Gas Co.'s No. 3 Gully, James Matthews Survey, is shut down for orders with 400 feet of oil in the hole, total depth 2,315 feet; No. 4 is drilling at 2,125 feet. Magnolia Petroleum Co.'s No. 3 T. C. Adams, James Matthews Survey, cored hard lime at 2,465 feet and No. 4 Ella Baker, B. C. Jordan Survey, cored lime at 2,902 feet; No. 3 Lula Fletcher in the same survey cored lime and shale at 2,475 feet. Natural Gas Production Co. is rigging up to drill No. 4 Floyd in the B. C. Jordan Survey.

ARKANSAS

Johnson County

Arkansas Natural Gas Corp. is setting 2,500 feet of 8-inch on No. 2 Bynum, Section 12-10-24, total depth 2,503 feet. No. 2 McPherson, Section 10-10-24, which showed for 15,000,000 feet of gas at 3,360 feet last week, was not completed, but killed the flow and is drilling shale at 3,422 feet.

Ouachita County

Mount Holly—Cumberland Oil Co.'s No. 1 Burton, Section 24-15-18, is shut down at 1,370 feet. Magnolia Petroleum Co.'s No. 1 Wilson, Section 25-15-18, was dry at 2,800 feet and is in red shale at 2,822 feet. McDonald Brothers' No. 2-B Wilson, Section 25-15-18, had salt water at 2,369-73 feet and is coring shale at 2,453 feet. Root Refineries, Inc.'s No. 1 Wilson, Section 25-15-18, cemented 6⅝-inch at 2,840 feet, total depth 2,844 feet.

Union County

Champagnolle—Magna Production Co. set 63 feet of 10-inch and is drilling at 1,200 feet on No. 2-B El Dorado Realty Co. in Section 7-17-13. Magnolia Petroleum Co. is coring at 2,762 feet on No. 1 Kelly, Section 9-17-14. Ohio Oil Co. has derrick up for No. 2 L. S. Adams, 330 feet north and east SW cor. NE NE Section 7-17-13; No. 1 Lynn, Section 7-17-13, set 10-inch at 170 feet, No. 1 E. Raulston, is a derrick 330 feet south and west NE cor. SW SE Section 12-17-14.

El Dorado—Gulf Refining Co.'s No. 1 Cook, Section 1-18-15, is coring at 3,273 feet. Standard Oil Co.'s No. 5 Burns, Section 31-17-15, is cleaning out, 40 feet off bottom, total depth 2,255 feet.

LA.-ARK. WILDCATS

(Continued from Page 46)

centering on Section 24-23-11, West Carroll, of which they are offering 20,000 acres for a well to go 3,000 feet and to start not later than 90 days from April 1 this year. The center of the block is approximately 20 miles north of Palmer Corp.'s two gas wells in Section 6-19-11, East Carroll Parish.

No. 1 Harp Abandoned

Woodley & Collins' No. 1 Harp in Section 22-22-7, Morehouse Parish, is temporarily abandoned as a dry hole at 3,006 feet, while negotiations are under way for financing another 500 feet of drilling from among owners of adjacent blocks. One of these is The Texas Company, which, having 1,000 acres near by, has bought another 800 scattered in the south half of Township 22, Range 6, on 5 and 10-year straight commercial leases.

Ruston Drilling Co. is rigging up to drill No. 1 West Virginia Land & Timber Co. in Section 23-15-7, Franklin Parish, about 5 miles south of production in the Richland Parish gas field, on a block of 4,000 acres and also is trying to interest other lease owners in a deep test project to be located probably in Section 32-17-7 about the same distance east of the north end of the gas field in Richland Parish. If it is put over the well is to be drilled to 3,000 feet.

Enochs and others, who had a show of oil and gas in 23 feet of broken sand at 3,569 feet and tested hot salt water on No. 1 Curry, Section 39-11-12, Tensas Parish, last October, and temporarily abandoned the wildcat after drilling to 3,583 feet, will make another test. They plugged back to 3,522 feet during the week to cut off the water and will drill out next week.

Robeline Oil & Gas Co., drilling No. 1 Cassady at the town of Robeline in Section 7-8-9, Natchitoches Parish, had a small show of gas at 3,100 feet but a drill stem test at that depth failed to develop anything.

Deepening Old Well

Atlantic Oil Producing Co. is drilling at 2,590 feet on No. 1 Young, Section 20-15-7, Ashley County, Ark., an old well abandoned at 2,554 feet and heretofore carried as No. 1 Bledsoe. The deepening is a unit plan operation, in

which the Atlantic, Amerada, Standard Oil, Phillips Petroleum and Lion Oil Refining companies each have an undivided one-fifth interest in the well and 4,000 acres.

Lauderdale County is getting much of the attention being paid Mississippi activities with one well drilling, two more getting under way and considerable trading going on. Meridian Natural Gas Co. says it has had gas shows at 646, 816 and 1,078 feet but not enough to make a well and is drilling at 1,164 feet on No. 1 Houser in Section 33-8-18. Smith and others have made location in the center of the SW SE, Section 34-7-14 in the center of a 30,000-acre block and have derrick up for a well scheduled to go 3,500 feet "unless."

Lauderdale Oil & Gas Co. has derrick pattern on location for No. 1 Lackey in the SE cor. NW NE Section 2-7-16, on a 40,000-acre block formerly carried as Baker & Adkins, in which Gulf Refining Co. has recently taken a spread of 1,920 acres and an option to take the remainder. The Lackey well is scheduled to go 3,250 feet. Shadbolt and others are building a block in Townships 8 and 9, Range 13, 14 and 15, in Lauderdale County on straight commercial leases which carry a half interest in the mineral rights with them.

Selma Chalk Topped at 1,666 Feet

Philps Brothers topped the Selma chalk at 1,666 feet on No. 1 James, Section 20-11-5, Yalobusha Copnty, which State University geologists figure is 200 feet above normal. Meanwhile Simms Oil Co. has taken a one-sixth interest in the well and 10,000 acres and may take more, and F. E. West and associates for whom Philps Brothers are drilling, have built another 15,000-acre block 7 miles east of the James well and just southeast of Water Valley on a surface and magnetometer high. They are offering 10,000 acres for a well to be begun before July 1 and several of the major companies are looking over their proposition.

J. P. Evans and others of Shreveport already largely interested in acreage propositions in Mississippi, are buying in Yazoo County, having approximately 9,000 acres to date and will probably have 30,000 to 40,000 acres before they get through, their present holding in Townships 9, 10 and 11, Range 1, 2, and 3w.

Derricks for two wildcats were abandoned this week: Benson Oil Co.'s No. 1 Jackson in Section 3-10-13, DeSoto parish and Magnolia Petroleum Co.'s No. 6 Carter, an old well in Section 13-12-11, will not be deepened as scheduled last week. R. O. Gray's No. 1 Sample in Section 1-13-14, DeSoto Parish, tested salt water at 3,102 feet. Nemours Corp.'s No. 1 Ellerbe in Section 18-15-12, Caspiana district of southeastern Caddo Parish, also was abandoned. It tested 50,000 feet of gas at 2,486 feet last week but on a second test at 2,528 feet got salt water.

NORTH LOUISIANA

Bossier Parish

Triangle Drilling Co. has rig up for No. 1 Fullilove, 660 feet south and east center Section 11-17-12. Walker and others' No. 1 Antrim, Section 28-22-13, is shut down at 3,048 feet waiting orders, claiming an oil show at that depth.

Caddo Parish

Lide & Davidson have rig up for No. 1 Glassell in Section 1-19-15. Humble Oil & Refining Co. and R. W. Norton's No. 1 Fortner, Section 32-21-16, is drilling at 3,110 feet. Root Refineries, Inc., has derrick up for No. 1 Liebman, Section 12-19-15. Simplex Oil Co. has derrick up for No. 1 Dickson in Section 33-20-14. The Texas Company's No. 1 School fee, Section 16-15-12, set 90 feet of 10-inch.

DeSoto Parish

Magnolia Petroleum Co. set 193 feet of 13⅜-inch surface pipe on No. 1 Clements, Section 28-12-11, and is coring in the Nacatoch at 864 feet.

Franklin Parish

Ruston Drilling Co. is rigging up No. 1 West Virginia Timber Co., 1,980 feet north and 200 feet east SW cor. Section 23-15-7e.

Grant Parish

Carter & Collins' No. 1 Hardtner & Tannehill, Section 9-6-1w, is drilling at 2,516 feet in sandy shale.

Lincoln Parish

V. E. Shaw and others' No. 1 Voss, Section 1-20-3w, is shut down at 2,722 feet waiting orders.

Monroe District

Morehouse Parish—Woodley & Collins' No. 1 Harp, Section 22-22-7, is shut down at 3,006 feet.

Ouachita Parish—Farish & Russell's No. 1 School fee, formerly Phillips and others, Section 16-16-4, is shut down at 3,520 feet.

Natchitoches Parish

Robeline Oil & Gas Co. is arranging for a drill stem test at 3,100 feet on No. 1 Cassady, Section 7-8-9, where it claims a show of gas.

Red River Parish

Eylers Oil & Gas Co. set 12½-inch at 189 feet on No. 1 Chaffraix, Section 30-12-10, and is drilling at 592 feet.

Richland Parish

Austin & McDonald's No. 2 Millsaps, Section 17-17-6, cemented 6-inch at 2,303 feet. Northern Louisiana Natural Gas Co. is drilling at 1,245 feet on No. 1 Hemler, Section 11-16-6.

Sabine Parish

R. L. Gay is drilling lime at 3,414 feet on No. 2 Bowman-Hicks, Section 14-7-14, and No. 3 is drilling at 1,980 feet. A. H. Tarver's No. 1 Long-Bell, Section 29-8-13, set 10-inch at 160 feet and is drilling at 1,045 feet.

Tensas Parish

Enochs and others' No. 1 Curry, 150 feet south and east NW cor. SE NW, Section 39-11-12e, shut down at 3,583 feet since November, plugged back to 3,522 feet to cut off a salt water flow and is waiting orders.

EAST TEXAS

Red River County—D. M. Buffington's No. 1 Hossier, Ed Hughes Survey, is drilling at 1,610 feet.

Shelby County—Gulf Refining Co. is coring at 4,025 feet on No. 1 Carraway in the J. H. Patterson Survey.

ARKANSAS

Ashley County

Atlantic Oil Refining Co.'s No. 1 Bledsoe, Section 20-15-7, is reaming to bottom, total depth 2,554 feet.

Bradley County

Ohio Oil Co. cored red shale at 3,225 feet on No. 2 Southern Lumber Co., Section 19-16-9.

Drew County

Ohio Oil Co.'s No. 1 Jerome, Section 13-15-4, is drilling at 3,410 feet.

Logan County

Arkansas Natural Gas Co. is drilling shale at 1,810 feet on No. 1 Hanna, Section 26-7-23.

Madison County

Independent Oil & Gas Co. is drilling white lime at 1,090 feet on No. 1 Banks & Teague, Section 6-16-27.

Nevada County

C. F. Steele's No. 1 Groves, Section 21-14-20, is in lime at 1,675 feet.

Ouachita County

Mount Holly District—Arkansas Drilling Co. has derrick pattern on location for No. 1 Crowley, 275 feet south and west NE cor. SE NE, Section 27-15-18. Timberlake and others' No. 1 Wright, Section 25-14-18, had salt water at 1,790-95 feet and is coring gumbo at 1,836 feet. Wesson and others' No. 1 Booth, Section 12-15-19, is drilling at 2,085 feet. Flaucher and others' No. 1 Buck, Section 7-15-17, is shut down at 2,465 feet. Louisiana Oil Refining Co.'s No. 1 Maly, Section 15-15-19, Stephens district, is in red shale at 3,657 feet.

Union County

Hawthorne Oil Co.'s No. 1 Smith, Section 8-16-17, is coring at 2,928 feet. Lion Oil Refining Co. is drilling No. 1 Stowe, Section 4-17-13, at 2,437 feet. J. O. Moore, trustee, has shut down No. 1 Union Sawmill, Section 11-18-12, at 2,866 feet. J. W. Olvey's No. 1 Cottrell, Section 22-19-17, is drilling at 3,170 feet. Sundby and others' No. 1 Yocum, Section 29-16-17, cored sand showing oil from 2,724-27 feet, total depth 2,728 feet. Phillips Petroleum Co. has location in the SW cor. NE SE Section 28-16-12, for No. 1 J. W. Kline.

Washington County

C. H. Willoughby's No. 1 Jones, Section 34-16-30, is drilling brown lime at 1,245 feet. Lincoln Lease Holding Co. is drilling at 475 feet on No. 1 Lincoln Townsite, Section 30-15-32.

MISSISSIPPI

Chickasaw County—Hightowen & Goldstein's No. 1 Davis, Section 20-13-3, is changing back to rotary tools to drill the Woodbine.

Claiborne County—Ben White's No. 1 Shannon, Section 36-10-4, is drilling at 2,004 feet.

Hinds County—Reeder and others' No. 1 State, Section 25-6-1e, is fishing for bit, total depth 2,761 feet.

Lauderdale County—Meridian Natural Gas Co.'s No. 1 Houser, Section 33-8-18, claims a show of gas at 646, 816 and 1,078 feet and is drilling at 1,164 feet. Lauderdale Oil & Gas Co. has derrick pattern on location for No. 1 Lackey in the SE cor. NE NE, Section 2-7-16, 1 mile north of the old Topton well.

Monroe County — Amory Petroleum Co.'s No. 1 Bourland, Section 2-13-19, has reached contract depth of 2,500 feet and arranging to go 3,500 feet. Amory Petroleum Co. is drilling sand at 2,855 feet on No. 1 Hall, Section 8-13-19, and Amory Natural Gas Co.'s No. 2 Carter, Section 7-13-17, is in white sand at 1,516 feet. Park Bowser, drilling No. 1 Cowart, Section 2-12-19, is waiting on 12½-inch drive pipe, total depth 350 feet. Arkansas Natural Gas Corp.'s No. 1 Rye, Section 22-15-17, is in a hard white water sand at 3,280 feet.

Rankin County — Lion Oil Refining Co.'s No. 1 Misterfeldt, Section 2-4n-1e, set 8¼-inch at 2,955 feet.

Yalobusha County—Phillips Brothers Drilling Co.'s No. 1 James, Section 20-11-5, topped the Selma chalk at 1,666 feet.

ALABAMA

Choctaw County—Greer and others' No. 1 Long-Bell, Section 28-10-4w, topped the Selma chalk at 2,598 feet and was still in it at 3,225 feet.

Lamar County—Briggs & Knapp set 200 feet of 10-inch to stop caving at 175 feet on No. 1 Wefel, Section 25-12-14.

TENNESSEE

Decatur County—Chester County Oil & Gas Co.'s No. 1 Montgomery, 7 miles south of Decatursville, had a show of oil in a soft lime formation at 948 feet and is arranging to set casing at 1,003 feet. Standard Oil Co.'s No. 1 Wyatt, 3 miles south of Decatursville, is fishing for tools, total depth 1,199 feet.

CALIFORNIA FIELDS

(Continued from Page 56)

time ago in Section 23-3-14, and drilling will commence again in the near future at 4,280 feet, at which point drilling operations were suspended. This test is located about 2 miles northeast of the Allied Petroleum Co.'s project and a similar distance due east of the Shell's wildcat in Section 20-3-14.

The Western Drilling & Production Co. is abandoning a wildcat drilled in Section 30-3-14, at 5,015 feet due to the unfavorable outlook. The abandonment of this well has diverted interest northeastward with the result that considerable leasing has been undertaken in the area immediately adjacent to the territory scheduled to be tested out by the Circle Oil Co.'s project in Section 23-3-14.

The Standard Oil Co., which has so far failed to secure production in the Lawndale Field, has swung northwestward and is rotating ahead in a wildcat east of the Mines Aviation Field in Section 5-3-14. Several other wells are also under way in this immediate area.

Prospecting Intermittent

Prospecting work in the eastern end of the Los Angeles Basin has been going on intermittently for the past several years, but exploration work at the present time is in excess of the usual quota. The Shell, which has been working on a wildcat on the Stern lease in the Coyote area for more than a year, recently staked location for a new test and rig construction has already got under way.

This project, located in Section 28-3-10, is situated on the Bastenchury ranch and is about 1,500 feet northwest of a duster drilled by the Union Oil Co. and abandoned at 5,235 feet. The Shell's new project, however, has considerable merit and may bear watching, especially in view of the data secured in the drilling of No. 1 Stern which, incidentally, has already produced a little oil.

The latter project was recently bottomed at 6,910 feet, where an oil sand of undetermined potentiality was picked up a short time ago. The Travis Drilling Co. recently hauled in material for a new wildcat to be drilled about a mile east of Buena Park and approximately 2 miles south of the West Coyote Field where 340 acres have been leased up. The nearest wildcat to this well was No. 1 McNally of the Union Oil Co., a duster at 5,608 feet, the distance between these two projects being about 2 miles.

SOUTHWEST TEXAS

(Continued from Page 48)

Ochoa, Survey 58, located 917 feet east line, 470 feet south line, is standing at 200 feet.

Albercas Field

Sun Oil Co.'s No. 12-A Yeager-Strohman, Share 5, located 4,675 feet north line, 150 feet west line, is standing at 2,155 feet. Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, located 1,950 feet north line, 150 feet east line, is standing at 2,145 feet.

Aviator or Bruni Tracts

Aviator Gas Co.'s No. 2 Bruni, Survey 2,083, located 1,102 feet east line, 1,170 feet south line, is location. G. C. Salley's No. 1 Puig, Carter-Pinkton tract, 220 feet west line, 150 feet south line, is testing at 1,608-09 feet.

Carolina-Texas Field

R. D. Barnsley's No. 1 Barnsley, Survey 268, Block 15, located 581 feet south line, 150 feet east line, is drilling at 100 feet. W. R. Shankle's No. 1 Webster, NE SE Survey 684, located 150 feet south and west lines, is showing some oil at 3,045 feet while fishing for bailer. The Texas Company's No. 2 Benavides, SE Survey 683, located 1,000 feet east line, 150 feet north line, is drilling at 2,265 feet with sand at 2,115-21 feet showing some high gravity oil on test. Trapshooter Reilley Oil & Royalties Co.'s No. 1 Benavides, NE NW Survey 685, located 150 feet north and east lines, has derrick up.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 67 Benavides, Survey 412, Block 12, located 313 feet east line, 160 feet north line, is standing at 38 feet. Magnolia Petroleum Co.'s No. 1 J. C. Valdez, Survey 754, Block 15, located 150 feet south and west lines, has derrick up.

Simms Gas Field

Houston Oil Co.'s No. 1 Dinn, Survey 666, located 1,172 feet north line, 160 feet east line, has sand at 1,771-74 feet and set casing.

Cole Gas Field

William F. Morgan's No. 3 King-Harper, Survey 323, at 1,748-53 feet tested 16 trebles of oil and salt water on tester. O. W. Killam's No. 4 (1) Bruni, Survey 5, Block 2, located 150 feet northwest lines, 86 feet southwest lines, has sand at 2,286-2,303 feet and has set casing at 2,282 feet; No. 9 Bruni, Survey 3, has derrick up.

Jennings Field—Zapata

Trapshooter Reilly Oil & Royalties Co.'s No. 2 Hinnant, Survey 74, located 757 feet east line, 1,170 feet south line, has sand at 1,598 feet and set casing. South Texas Production Co.'s No. 4-A Jennings, Cerrito Blanco grant, 8,250 feet southwest lines, 6,825 feet southeast lines, has sandy shale at 1,938 feet.

Somerset Field—Atascosa

W. R. Hamilton's No. 16 E. T. Hughes, Survey 518, is location western central part of lease.

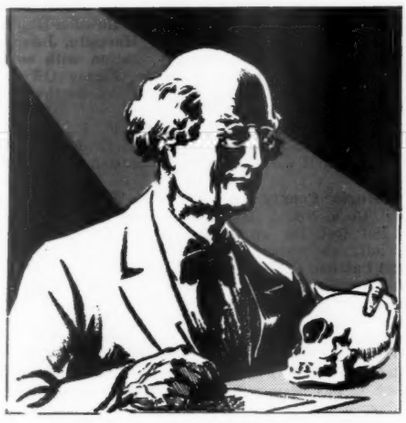
Yoast Field—Bastrop

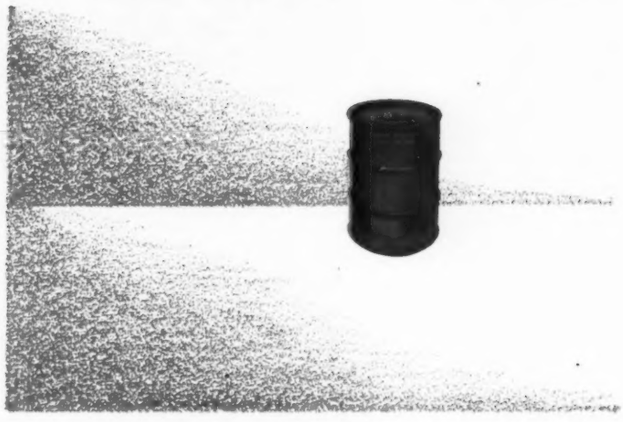
Atlantic Oil Production Co.'s No. 5 Yoast, A. Garcia, 300 feet east of No. 4, is drilling. The Texas Company's No. 5 Yoast, A. Garcia Survey, 300 feet east of No. 4, is drilling.

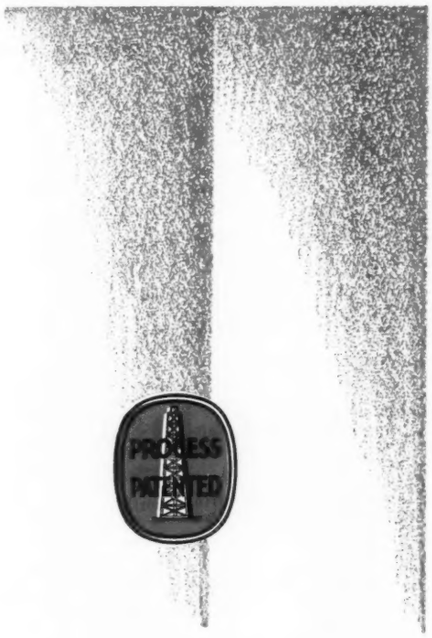
Somerset Field—Bexar

W. H. Kennon's No. 2 fee, Survey 4, is location 1,500 feet north, 15 degrees east of No. 1. Schimmel Production Corp.'s No. 1 Gayle, C.E.P.I.&M. Survey, Block 2, is location 250 feet west line, 895 feet south line; No. 2 Gayle, same survey and block, is location 350 feet north

KNOWLEDGE







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WM. S. BARNICKEL & CO.
WEBSTER GROVES, MO.

line, 150 feet east line; No. 1 J. Frees, same survey and block, is location 250 feet east line, 829 feet south line; No. 2 J. Frees, same survey and block, is location 679 feet north of No. 1.

Saxet Field

Saxet Gas Co.'s No. 1 John Dunn, discovery gas well of field completed January 8, 1923, at 2,408 feet, at 2,570 feet is setting casing in preparing to going back to make a deep test.

Dobrowolski Field

F. H. Eckert's No. 4 Dobrowolski, Section 52, Block 4, located 450 feet south line, 150 feet east line, at 350 feet is repairing engine.

Pettus Field—Bee

Mission Drilling Co.'s No. 2 Ray (formerly carried as No. 1) is drilling at 2,600 feet.

Joe Bruner Field—Caldwell

Tips de Armond's No. 2 Carter, Gerren Hinds Survey, 170 feet west line, 147 feet north line, is drilling at 1,005 feet, showing some gas. Buchanan and others' No. 1 Trap Briscoe, P. B. McCearley Survey, 150 feet south and east lines, at 2,828 feet is drilling in Taylor marl and will be first of several tests carried down 500 feet into Edwards and used as cavity wells for refuse from the field.

E. R. Brawn and C. O. Miller's No. 2 R. W. Carter, Gerren Hinds Survey, 150 feet north and west lines, has derrick up. Cranfill & Reynolds' No. 2 Hanson, James Hinds Survey, is drilling at 102 feet in shale and boulders; No. 3 Hanson, James Hinds Survey, is at 100 feet setting 10-inch casing. Forest Oil Co.'s No. 1 A. C. Bridges is drilling at 2,482 feet in Eagleford. Gulf Production Co.'s No. 10 R. W. Carter, Gerren Hinds Survey, is at 2,189 feet waiting on cement; No. 11 R. W. Carter, Gerren Hinds Survey, at 2,672 feet set 533 feet of liner; No. 12 R. W. Carter, Gerren Hinds Survey, is drilling in Taylor marl at 2,349 feet.

No. 6 J. D. Wright, Gerren Hinds Survey, 150 feet NW cor., at 2,671 feet, is swabbing, no gauge given; No. 8 J. D. Wright, Gerren Hinds Survey, at 2,396 feet is drilling in chalk; No. 1 J. L. Northcutt is drilling at 1,900 feet in shale and boulders. T. C. Hadley's No. 1 J. M. Hanson, James Hinds Survey, 150 feet south and east lines, is rigging up with rotary.

No. 1 Merriweather, A. Floyd Survey, 119 feet north line, 150 feet east line, at 2,749 feet is to plug back; No. 2 Merriweather, A. Floyd Survey, 150 feet west line, in center of tract, is building derrick. Humble Oil & Refining Co.'s No. 1 J. L. Northcutt is at 42 feet setting 10-inch surface casing; No. 1 Trap Briscoe, 150 feet SW cor., is at 199 feet drilling in clay and gravel.

No. 4 L. G. Hanson, 150 feet to NE cor., in James Hinds Survey, is setting 42 feet of 10-inch casing; No. 4-A Moses & Baggett, 300 feet west of No. 1, at 2,669 feet drilled plug and is preparing to swab; No. 8-A Moses & Baggett, Gerren Hinds Survey, is drilling at 2,042 feet in shale; No. 3-B Moses & Baggett, Samuel Shupe Survey, 150 feet east line, 1,050 feet south line, has derrick up; No. 4-B Moses & Baggett, same survey, 1,350 feet south line, 150 feet east line, has derrick up.

No. 1 Clyant Smith, 150 feet NE cor., at 2,720 feet is preparing to swab; No. 1-A J. R. Tiller, James Hinds Survey, 150 feet west line, 1,050 feet south line, has derrick up; No. 2-A J. R. Tiller, 300 feet north of No. 1-A, has derrick up; No. 1-B J. R. Tiller, 150 feet west line, 1,050 feet south line, has derrick up; No. 2-B J. R. Tiller, 150 feet east of road and 219 feet north line, has derrick up; No. 3-B J. R. Tiller, James Hinds Survey, 150 feet NW cor., is moving in rig.

No. 1 Tom Miller, James Hinds Survey, 150 feet NE cor., is drilling in Taylor marl at 2,295 feet. Luling Oil & Gas Co.'s No. 1 G. R. Carter, Gerren Hinds Survey, 150 feet north and west lines, is drilling at 2,606 feet in Georgetown. Herbert Morgan and others' No. 1 Caldwell County Land, James Hinds Survey, is rigging up with rotary. Morgan-Duke's No. 2 Cora Malone, A. Floyd Survey, 300 feet southwest of No. 1, is partially rigged up.

Shell Petroleum Corp.'s No. 1 Clyant Smith, 150 feet south and east lines, has been held up; No. 2 New, James Hinds Survey, 340 feet north of No. 1, at 2,741 feet plugged back from 2,749 feet, is running tubing and rods; No. 4 New, James Hinds Survey, 340 feet north of No. 3, is at 2,645 feet in Del Rio topped at 2,618 feet; No. 6 R. W. Malone, A. Floyd Survey, is location 700 feet south and east lines.

The Texas Company's No. 1 R. W. Carter, Gerren Hinds Survey, 150 feet south and east lines, at 2,709 feet is swabbing and showing very little oil and lots of water. Thurman & Brown's No. 1 A. C. Bridges, 100 feet east line, in center of tract, is drilling at 855 feet in shale; No. 1 Beversdorff, A. Floyd Survey, is location 150 feet southeast lines, 131 feet southwest lines.

Dale Field

The Texas Company's No. 2 Jeff Moore, J. Gilbert Survey, 600 feet northwest lines, 1,600 feet southwest lines, is drilling at 1,400 feet in shale.

Luling Field

United North & South Development Co.'s No. 1 G. C. Gideon, Miles Dykes Survey, 880 feet north line, 320 feet west line, is drilling at 3,850 feet in Glen Rose which is rather broken.

Sullivan Field—Gonzales

Benedum & Trees' No. 1 J. E. Lamkin, Winslow Turner Survey, is drilling at 4,200 feet. Empire Gas & Fuel Co.'s No. 2 Norwood, Winslow Turner Survey, 600 feet northwest of No. 1, is at 3,743 feet coring for sand.

Luling Field—Guadalupe

A. B. A. Oil Co.'s No. 4 Britton Harris is shut down at 1,250 feet.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 5-B Dennett, Section 38, Block 10, located 400 feet north of No. 1, at 2,505 feet had salt water drilling ahead; No. 4 Flato, Section 40, Block 10, located 250 feet east line, 450 feet north line, at 5,680 feet set casing at 2,656 feet to test sand at 5,674-93 feet.

Agua Dulce Field—Nueces

Agua Dulce Oil & Gas Co.'s No. 1 Otto Wolters, Section 34, at 2,047 feet made sulphur water and is standing. R. & G. Corp.'s No. 1 Brown, Section 87, is location; No. 2 Ed Allen, Lot 5, Section 6, about 1,900 feet east of No. 1, has derrick up.

Refugio Field—Refugio

Benedum & Trees' No. 4 Claude Heard, 600 feet south of No. 3, has derrick up. Houston Gulf Gas Co.'s No. 4 O'Brien, Survey 4, is at 3,660 feet in sandy shale; No. 1 J. F. B. Heard is rigging up; No. 2 Rose Lambert is cementing at 3,646 feet; No. 8 James Agnes Lambert is drilling at 3,426 feet in sticky shale; No. 2 Rooke, 700 feet north of No. 1, at 86 feet is having trouble in controlling gas and water blowout; No. 7 T. P. Shelly is at 3,393 feet in gumbo and lime.

Mission Drilling Co.'s No. 1 Powers at 497 feet set 12½-inch surface casing; No. 1 J. E. Fox heirs at 3,280 feet had test showing oil and small amount of salt water. Oigufer Oil Co.'s No. 1 Ryals at 3,786 feet is estimated making 500 bbls. oil and no water. Rogers & Heep's No. 1 Fox estate, Block 4, is location for deep test. Refugio Development Co.'s No. 1 City of Refugio at 3,400 feet showed 14 joints of oil on test; has been closed down by injunction served on operators. Saxet Gas Co.'s No. 7 Claude Heard, 150 feet south of No. 6, is drilling at 1,370 feet.

West Field—Zavala

Tritex Oil Co.'s No. 4 West is drilling at 1,000 feet; No. 6 West is shut down at 520 feet.

COMPLETIONS

Bexar County

W. R. Hamilton's No. 16 R. T. Hughes, Survey 518, completed an average well of field.

Caldwell County

Shell Petroleum Corp.'s No. B-3 Robert W. Carter, Gerren Hinds Survey, completed 2,681 feet estimated 155 bbls. in 18 hours.

Forest Oil Co.'s No. 1 J. H. Fleming, A. Floyd Survey, completed 2,748 feet; initial production of 160 bbls. in 15 hours.

Lutex Oil Co. Inc.'s No. 4 J. Wilson, A. Floyd Survey, completed 2,690 feet, pumper, no gauge given.

Bastrop County

Atlantic Oil Production Co.'s No. 5 Yoast, A. Garcia Survey, completed 1,509 feet swabbing 15 bbls.

The Texas Company's No. 5 Yoast, A. Garcia Survey, completed 1,497 feet pumping 300 bbls.

Duval County

S. & O. Oil Co.'s No. B-3 J. Bowe, Survey 250, Block 11, completed 2,323 feet for 25 bbls.

Humble Oil & Refining Co.'s No. 21 Kohler, Survey 396, completed 1,854 feet for 25,000,000 feet of gas.

Humble Oil & Refining Co.'s No. 18 Kohler, Survey 402, completed 1,835 feet for 25,000,000 feet of gas.

Live Oak County

Houston Oil Co.'s No. A-1 Brown Land & Cattle Co. completed gas at 2,083 feet with 1,000 pounds rock pressure.

Nueces County

Saxet Gas Co.'s No. 5 Dunn has been completed as a gas well with 750 pounds rock pressure.

Refugio County

Oigufer Oil Co.'s No. 1 Ryals completed at 3,786 feet for an estimated 500 bbls. of oil; no water.

San Patricio County

Spencer & Rhoades' No. 2 J. M. Bennett has been completed at 2,547 feet as a gas well and on the line, showing no water in gas.

Jim Hogg County

A. L. Kitselman's No. 1 Lopez, Survey 255, Block 6, has been completed at 1,967 feet, plugged back from 3,402 feet, for a 50,000,000-foot gas well.

Webb County

Houston Oil Co.'s No. 1 Dinn, Survey 666, completed at 1,780 feet for 40,000,000 feet of gas.

O. W. Killam's No. 4 Bruni, Survey 5, Block 2, has been completed at 2,303 feet for 35,000,000 feet of gas with 775 pounds rock pressure.

ABANDONED TESTS

Bexar County

Dixie Oil Co.'s No. 1 Medina Irrigation Co., Survey 180, spudded in and abandoned.

Caldwell County

Al Buchanan and others' No. 1 Callahan, Joe Roe Survey, is dry and abandoned at 2,350 feet.

Goliad County

Booth McCarson's No. 1 Murray, Survey 2, Block 11, has been abandoned at 1,500 feet.

J. E. Alexander's No. 1 Frommie, 10 miles north of Goliad, is dry and abandoned at 900 feet.

Guadalupe County

Magnolia Petroleum Co.'s No. 1 Whitley, Samuel Highsmith Survey, has been abandoned at 2,376 feet dry.

Jim Hogg County

Alworth-Stevens-Hild's No. 16 Alworth, Survey 40, Block 14, has been abandoned at 1,101 feet dry.

Nueces County

F. P. Zoch's No. 1 Kelly, Survey 5 Rtg. 6, is dry and abandoned at 3,000 feet.

Webb County

William F. Morgan's No. 3 King-Harper Survey 323, is dry and abandoned at 1,760 feet testing 16 trebles of oil and salt water.

NEW LOCATIONS MADE

Atascosa County

Schimmel Production Co.'s No. 3 H. F. Gayle, C.E.P.I.&M. Survey, Block 2, is location 946 feet east of No. 1.

Brooks County

Amos Dinn, Trustee's No. 1 Garcia, Las Mestena Grant, is rigging up.

Caldwell County

The Texas Company's No. 7 Merriweather is drilling at 38 feet and will set 10-inch casing there.

The Texas Company's No. 8 Merriweather is drilling at 650 feet in shale and boulders.

Shell Petroleum Corp.'s No. 1 C. F. Dye is rigging up with rotary.

Lutex Oil Inc.'s No. 5 J. Wilson, A. Floyd Survey, is in sandstone at 308 feet.

Humble Oil & Refining Co.'s No. 2 Tom Tiller, James Hinds Survey, is location.

Humble Oil & Refining Co.'s No. 2 J. L. Northcutt has derrick up.

Humble Oil & Refining Co.'s No. 1 Addie Hinds has derrick up.

Humble Oil & Refining Co.'s No. 2 Addie Hinds has derrick up.

Humble Oil & Refining Co.'s No. C-1 Floyd Gray is location.

Humble Oil & Refining Co.'s No. 1 C. F Dye is building derrick.

Guadalupe County

Trinity Driller's No. 1 William Weinaug is location.

Live Oak County

Houston Oil Co.'s No. 1 T. G. Parr, J. McMullen Survey, is location 532 feet southwest lines 635 feet northeast lines.

Medina County

Rawdon-Hughes and others' No. 1 Haegelin, Joseph Barnhart Survey, is location with contract completed for test.

Zigzag Oil Co. is making location 4 miles northwest of Devine.

Nueces County

F. P. Zoch's No. 1 H. B. Baldwin, J. C. Russell Survey, Block 21, is location 150 feet north and east lines.

Refugio County

Houston Oil Co.'s No. 7 W. Heard is location.

Houston Oil Co.'s No. 6 W. Heard is location.

Mission Drilling Co.'s No. 1 J. F. B. Heard is rigging up.

Zapata County

Magnolia Petroleum Co.'s No. 1 E. Cuellar, Survey 246, is location 660 feet northeast and southeast lines.

H. Muckelroy's No. 1 Trevino, Survey 412, Block 5, located 150 feet south line is moving on.

O. W. Killam's No. 4 Hinnant, Survey 74, located 980 feet west line 150 feet south line, has been spudded in.

SOUTHWEST WILDCATS

(Continued from Page 48)

Co.'s No. 1 Kelsey, Porcion 76, Block 11, located 1,500 feet north line, 500 feet west line, is drilling at 450 feet. The Texas Company's No. 1 V. C. de Guerra, Porcion 68, Share 92, located 600 feet east line, 6,280 feet south line, is drilling at 2,199 feet.

Webb County

G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, Block 17, is location 1,170 feet east line, 150 feet south line. L. W. Nelson's No. 1 Moglia, Survey 672, located 150 feet east line, 2,584 feet south line, is drilling at 2,200 feet. Usher Carson's No. 2 D. Benavides, Survey 1,613, Block 11, located 150 feet north line and west line, is at 936 feet, changing rig.

Zapata County

National Oil Co.'s No. 1 Don B. Adams, Section 11, Block 4, is drilling at 100 feet. John Pappas' No. 1 Cuellar, Porcion 33-34, Block 5, located 333 feet northeast lines, 194 feet southeast lines, is drilling at 1,050 feet. R. V. Hill's No. 5 Martinez, Survey 627, located 400 feet northwest lines and northeast lines, is standing at 1,395 feet.

Atascosa County

Amphion Oil Co.'s No. 1 Sam Schlisser, Farm B, located 300 feet northeast lines, 600 feet southeast lines, at 1,785 feet is drilling in Midway changing to shale, showing no water.

Bastrop County

Gypsy Producing Co.'s No. 1 Lottman estate is shut down at 2,320 feet. Howell Oil Corp.'s No. 1 F. Wichman, near town of Page, is completing water well to spud in probably April 24. E. W. Ogden's No. 1 M. M. McColl, Stephen F. Austin Survey, 50 yards west of No. 1, is drilling at 2,500 feet in Taylor marl showing oil in trough, very light oil.

Bexar County

Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urriegas Survey, 300 feet north of No. 1, is at 4,390 feet in sandy shale. Indian Creek Oil & Gas Co.'s No. 1 W. Wolfsohl, J. A. Navarro Survey No. 5, located 180 feet CEL, is drilling at 420 feet. Moore-Jauer's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet east line, 1,500 feet south line, at 1,065 feet is making slow progress account of broken drilling line, gas continuing to increase. J. Morgan Russell's

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No. 1 G. A. C. Halff is location in city limits. B. L. Raborn's No. 1 Englemann, John James Survey, No. 73, located 300 feet south line, 600 feet east line, is standing at 1,715 feet.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 930 feet north line, 660 feet east line, is standing at 214 feet. Robert A. Rodson's No. 1 Glasscock, Survey 50, located 150 feet CEL, is standing at 962 feet, oil in hole.

Caldwell County

Alexander & Smith's No. 1 P. A. Cardwell, J. P. Bell Survey, 150 feet south and west lines, is drilling in chalk at 1,460 feet. Whittington and others' No. 1 J. G. Horner, Francis Berry Survey, is at 1,140 feet connecting up new boilers.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tully Survey, 910 varas north 5°30" west of north, corner of John C. Post Survey, at 2,748 feet resumed drilling and will go 4,000 feet.

Edwards County

A. M. Griffith's No. 1 Wardlaw, Section 60, Block V8, located 1,050 feet west line, 150 feet south line, is drilling at 1,260 feet.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon League No. 5, located 250 varas north line and little west of center, at 2,364 feet is drilling, showing some gas. National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams League No. 1, located 300 feet north and east lines, is drilling at 3,140 feet in sandy shale.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn, NW cor., spudded in and shut down. Joe Bruner's No. 1 Miller, Richard Heath Survey, 3,040 feet north line, 200 feet east line, is drilling at 1,930 feet. Crown Petroleum Co.'s No. 1 Hattenbach, James Jones Survey, 900 feet east line, 200 feet south line, has been spudded in. S. D. Sorrell has taken over Dunning & Pierce's No. 1 Mrs. Mattie Keepers, R. Ward Survey, standing at 203 feet to deepen. W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, is shut down at 5,212 feet. Finnell & Elam's No. 1 J. Robinson, is building derrick, located 5 miles north of Waelder.

Linderman Brothers' No. 1 F. H. Frampton, Richard Heath Survey, 2,120 feet north line of creek, 1,930 feet east line, is at 630 feet rigging up for double shift. W. G. Malone's No. 1 D. G. Staton, J. M. Salinas Survey, 375 feet southwest lines, 1,275 feet northwest lines, is drilling below 400 feet. Frank Sorrell's No. 1 Wilkenson, 100 feet west of No. 1, is location between towns of Slayden and Harwood.

Guadalupe County

J. J. Christie's No. 1 Taylor Thomas, Gustavus Chotwell Survey, 1,100 feet southwest lines, 1,130 feet southeast lines, is shut down because of high water. A. G. Kiffer's No. 1 B. B. Dix, Ira Nash Survey, 320 feet east line, 610 feet north of road, is at 1,050 feet with gas sufficient to raise fluid 3 feet over casing.

Mid-Kansas Oil & Gas Co.'s No. 1 C. Lehmann, J. B. Cowan Survey, 900 feet northeast lines, 150 feet southeast lines, is drilling at 1,200 feet. Miller Brothers' No. 1 Gib Springs, Cortari Survey, 450 feet west line, 775 feet south line, is drilling at 2,425 feet. Eugene Sight's No. 1 Woehler, John King Survey, 310 feet north line, 210 feet east line, is getting ready to set casing.

Jackson County

The Texas Company's No. 1 W. C. Moore, I.&G.N. Survey No. 208, located 5,108 feet south line, 150 feet west line, is drilling at 3,585 feet (corrected depth.) Wright Brothers' No. 2 Classen is at 3,945 feet; No. 8 Drushell has derrick up.

Karnes County

Hurador Oil Co.'s No. 1 W. E. Porter, 6 miles south of Runge, is drilling at 1,300 feet. Townsend is making location for test 4½ miles northwest of Runge.

Kerr County

McMan Oil & Gas Co.'s No. 2 Walter Schreiner is location. L. R. Page and others' No. 1 Neal, Survey 2, Block 15, center, has derrick up and tools on the ground.

Kendall County

A. D. Gibbs' No. 1 A. J. McCrocklin, 6 miles southeast of Sisterdal is moving in tools.

Kimble County

H. A. McLean's No. 1 Cannon, Section 741, located 330 feet south and east lines, is drilling at 160 feet.

Kinney County

Lloyd Oil Co.'s No. 1 G. Bedell Moore estate, Section 117, located 1,320 feet CNL, is shut down at 1,000 feet in Del Rio with hole full of water from 300 feet. Mardon Oil Co.'s No. 1 Jim Clamp, Section 1,492, Survey 346, at 2,540 feet after bridging, filled hole with oil.

Maverick County

Rycade Oil Corp.'s No. 4 J. M. Chittim, Section 104, Block 7, east central part, is drilling at 475 feet; No. 3 Chittim, Section 116, Block 7, is at 3,419 feet, drilling; No. 4 Sullivan, Section 112, Block 7, at 265 feet is straightening hole.

Medina County

California-Medina's No. 1 Rothe, Survey 102, at 3,282 feet has resumed work. F. M. Cline's No. 1 Bendele, Survey 593, is standing at 815 feet. Donaldson Oil Development Co.'s No. 1 Adams Co., Survey 25, located 160 feet east line, 1,227 feet south line, is standing at 3,125 feet. Lynch and others' No. 1 Mott resumed drilling at 580 feet after shutting off water. Rawdon-Hughes and others' (Richardson) No. 2 Bendele, Survey 593, is standing at 937 feet showing some oil at 915 feet.

Cecil Switzer's No. 1 Zerr is drilling out plug. T. N. T. Drilling Co.'s No. 1 Bendele, Survey 470½, located 150 feet west line, 500 feet south line, is moving in machinery. W. W. Woodworth's No. 1 T. P. Johnson, J. Hall Survey, 450 feet south and east lines, has been spudded in.

Milam County

J. M. Burkhead's No. 1 C. Weigmann, A. Pollard Survey, 1,075 feet north line, 450 feet west line, has spudded in. E. L. Chapman's No. 1 J. M. Gilchrist, J. J. Acosta Survey, 150 feet north and west lines, is rigging up. H. E. Elliott's No. 1 J. C. Moore is erecting derrick. Groneman Brothers' No. 1 Dornhoefer has spudded in and is drilling. Rogers & Heep's No. 1 J. B. Duncan, J. J. Acosta Survey, 1,800 feet north line, 750 feet east line, is drilling at 1,100 feet in Austin series.

McMullen County

Natt Holman's No. 1 Shiner, Henry M. Brewer Survey, 7,515 feet south of Nueces River, 3,084 feet east line, is shut down at 760 feet to lay water line.

Nueces County

Pearson and others' No. 1 Bluntzer, Block 3, NW cor., is drilling at 3,190 feet. R. & G. Corp.'s No. 1 Perkins, W. W. Wright Survey, 150 feet west line, 1,920 feet south line, is standing at 3,510 feet; No. 1 Roberts is location; No. 1 Ragland is standing at 3,003 feet having reached contract depth. Neuces River Basin Development Co.'s No. 1 Allen, G. Farrier Survey, is rebuilding derrick at 3,035 feet, blown down in recent storm. F. P. Zoch and Texas Production Co.'s No. 1 Lesaloney, Caso Blanco, 1,050 feet west line, 150 feet north line, is setting 450 feet of 10-inch surface casing.

Refugio County

Blanco Creek Oil Co.'s No. 1 St. John, J. Scott Survey, 708 feet northwest lines, 3,074 feet northeast lines, is at 2,544 feet showing trace of gas and oil at 2,450 feet, shut down for drill pipe. Mission Drilling Co.'s No. 1 Mitchell, which at 4,036 feet showed trace of oil, is still working to bring in and control salt water.

San Patricio County

J. T. LaPrade's No. 1 D. Odem, Herron Survey, is drilling at 3,000 feet. George B. Pickett's No. 1 Whitworth, NW NW Section 60, cementing special casing at 3,000 feet, total depth 3,250 feet.

Victoria County

Humble Oil & Refining Co.'s No. 1 G. Knape, Section 6, is location; No. 1 G. F. Oliver, J. H. Poindexter Survey, 2,489 feet southeast lines, 3,023 feet northeast lines, is drilling; No. 3-A J. J. Welder, D.L.&C. Survey, 1,634 feet southeast lines, 736 feet southwest lines, is drilling.

Zavala County

Tritex Oil Co.'s No. 1 Childress is drilling at 300 feet; No. 1 Clay Burns is drilling at 710 feet.

MICHIGAN FIELDS

(Continued from Page 49)

tion 12-10-17, Laketon Township, came in at 2,013 to 2,016 feet to make 70 to 75 bbls. initial, good for 1,200 bbls. initial.

Johnson Oil Refining Co.'s No. 2 Frank J. Cihak made a 60-bbl. pumper in the upper Traverse, NE NE Section 12-10-17, on the adjoining lease from the Reliable Oil & Gas Co.'s No. 1 Murphy, which came in last week making 100 bbls. an hour but is now held back to 450 bbls. a day and must be treated for water.

Royal Petroleum Corp.'s No. I Launstein, SE SE Section 1-10-17, shot at 1,704 feet, failed to make production.

New Locations

Five new locations were made, four in Sections 11, 12 and 14 of Laketon Township and one in Muskegon Township. The Laketon Township locations are: Nelson & Witt, Inc., No. 5 Horton, NE SE Section 11-10-17; Majestic Development Co.'s No. 1 Albert Young, SE NE Section 12-10-17; Nelson & Witt, Inc., No. 2 Ralph Andree, NW SE Section 12-10-17; and C. W. Porter and others' No. 1 J. Jacobsen estate, NW SE Section 14-10-17.

Gillette-Beebe Oil Co.'s No. 1 Henry Smeltekop, NW SW Section 5-10-16, Muskegon Township, has started drilling.

KANSAS FIELDS

(Continued from Page 44)

Simpson sand at 3,379-83 feet. After being put to swabbing it is now producing 1,050 bbls. daily.

Buy Interest in Airport Well

The Tom Slick Oil Co. and Pryor & Lockhart have purchased a half interest in the Lewis-Brooks-Taylor No. 1 Taylor, NW cor. NE, Section 23-27-2e, Sedgwick County, 6 miles of Wichita and known as the Airport well, and the 80-acre tract on which it stands. The reported consideration was $12,500. The well is starting up after being shut down for some time, at 3,117 feet in lime. The operators expect to drill the well in the latter part of this week.

Gypsy Oil Co.'s No. 1 Wieland, SW cor., Section 36-12-16, Ellis County, wildcat has a stray sand from 2,869 to 2,987 feet. It is estimated good for 200 bbls. at the present depth and is the third wildcat well to show for a commercial well in Ellis County in the past month.

Shawver and Deering-Marshall are starting a new well that may prove up the trend to the southeast of Wichita. It is their No. 1 Scott, SE SW SW, Section 10-28-1e, Sedgwick County.

A Chase County wildcat showing oil in the chat at 2,514-24 feet is Smith & Polhamus' No. 1 Leady, SW NW, Section 36-22-9e, and it shows up like a commercial well. They are testing the well before a production gauge can be made.

Barber County

Barbara Oil Co.'s No. 1 Lytle, NE cor. NW, Section 12-33-13w, has been completed for 22,000,000 feet of gas in sand at 4,548-56 feet.

Butler County

Empire Oil & Refining Co. is erecting the rig for No. 2-W Sherrock, NW cor. NE NE, Section 22-27-5. No. 8 Cranston, NW cor. NE SE, Section 22-27-5, is also a rig under construction. Ed Schreck and Jim Lilly's No. 1 Teeter, SE cor. SW, Section 8-25-7, has been abandoned at 822 feet.

Cowley County

Lewis Production Co.'s No. 1 Sitton, SE cor. SW NE, Section 30-31-6, is rigging up. The Prairie Oil & Gas Co. made location for No. 5 Youle, NW cor. SW NW NW, Section 15-32-4. No. 6 Youle, NW cor. SE NW NW, Section 15-32-4, is also a location. No. 2 Mitschler, NE cor. SE SE, Section 19-32-4, is rigging up.

Dutton & Gillispie's No. 1 Boeger, SW cor. NE Section 21-30-4, is dry and abandoned at 2,905 feet. T. C. Johnson and Shell Petroleum Corp.'s No. 1 Jarvis, NW cor. SW, Section 19-33-6, has been abandoned at 3,555 feet. Pyle & Sutter's No. 1 Lundstrom, SW cor. NE, Section 9-35-4, is dry and abandoned at 3,651 feet. The Prairie Oil & Gas Co.'s No. 3 Youle, SE cor. Section 9-32-4, made 400 bbls. from sand at 3,268-80 feet. No. 4 Youle, NE cor. NW NW, Section 9-32-4, was completed for 5,750,000 feet of gas in sand at 2,262-72 feet. No. 2 Youle, NW cor. Section 9-32-4, made 400 bbls. from sand at 3,247-58 feet.

Greenwood County

Reed and others made location for No. 1-A Dales, SE cor. Section 2-22-10. Mid-Continent Petroleum Corp.'s No. 15 Wayham, NE cor. SE, Section 14-24-12, is rigging up. The Prairie Oil & Gas Co. made location for No. 1 Prather, NE cor. SW SE, Section 15-25-11. Paul & Parker's No. 1 Wiley, SW cor. SE NW, Section 28-26-11, is spudding.

Independent Oil & Gas Co.'s No. 11 Sheperd, SE cor. NE NW, Section 11-22-10, made 200 bbls. from Bartlesville sand at 2,142-47 feet. No. 14 Wayham, SE cor. NE, Section 14-24-12, was completed for 25 bbls. in sand at 1,708-40 feet. Rockhill & Taylor's No. 1 Miller, NW cor. SW, Section 2-25-10, is dry and abandoned at 2,155 feet. The Prairie Oil & Gas Co.'s No. 4 Gaffney, NW cor. SE SE, Section 7-24-11, was completed for 100 bbls. in sand at 1,868-83 feet.

Harvey County

McCulloch Oil Co. made location for No. 1 Prouty, NW cor. SW, Section 3-23-1w.

Kingman County

Gypsy Oil Co. has the rig on the ground for No. 1 Kincaid, NE cor. NW, Section 18-20-5w.

McPherson County

Merriman and others made location for No. 1 Chindberg, C SE NW, Section 18-19-2w.

Rooks County

Krueger and others' No. 2 Tatkenhorst, SW cor. SE SW, Section 11-9-16w, is dry and abandoned at 3,584 feet.

Russell County

Mid-West Exploration Co. has the cellar dug for No. 4 Baxter, NE cor. NW SW, Section 32-13-15w. Keys Petroleum Co.'s No. 7 Mermas, SW cor. NE NE, Section 32-13-15w, has been abandoned at 3,360 feet.

Sedgwick County

Bu-Vi-Bar Petroleum Corp. and others' rig is up for No. 1 Carr, NE cor. SE, Section 1-26-1w, Valley Center Pool. Skelly Oil Co. and Davis and others' No. 6 Wilson, SE cor. NE, Section 1-26-1w, is spudding. Coleman Oil & Gas Co.'s No. 1 Aley, NE cor. SW NE, Section 26-26-1w, is a rig. Tidal Oil Co. has the rig up for No. 3 Scherger, SW cor. NW, Section 6-26-1. Derby Oil Co. has built the rig for No. 3 Gorman, NW cor. SW, Section 6-26-1. Shawver and others' No. 1 Scott, SE cor. SW SW, Section 10-28-1, is a rig on the ground.

The Prairie Oil & Gas Co.'s No. 1 Cross, NE cor. Section 27-25-1w, made 12 bbls. at 2,705 feet. Plains Oil Co.'s No. 1 School Lot, NE cor. SE SE, Section 36-25-1w, made 75 bbls. from sand at 3,412-14 feet. Robinson and others' No. 1 Whittaker, SE cor. SW NE, Section 36-25-1w, is dry and abandoned at 3,466 feet. John Rogers' No. 1 Fulkerson, NW cor. NE SE, Section 36-25-1w, has been abandoned at 3,460 feet. Phillips Petroleum Co.'s No. 1 Difford, NW cor. NE NE, Section 1-26-1w, made 170 bbls. from sand at 3,403-05 feet. Bu-Vi-Bar Petroleum Corp. and others' No. 1 Roll, NW cor. NE, Section 7-26-1, was completed for 1,150 bbls. in sand at 3,367-74 feet. Tidal Oil Co.'s No. 2 Scherger, NW cor. SW NW, Section 6-26-1e, made 350 bbls. from sand at 3,383-91 feet. Sutter & Pyle's No. 1 Caldwell, NW cor. SE SW, Section 6-26-1, was completed for 815 bbls. in sand at 3,381-84 feet. Bu-Vi-Bar Petroleum Corp.'s No. 1 Nagel, NE cor. SW, Section 19-25-1, is dry and abandoned at 3,500 feet.

Sumner County

Harris & Haun's No. 1 Mireau, C NE NW, Section 23-34-2, has been abandoned at 3,826 feet.

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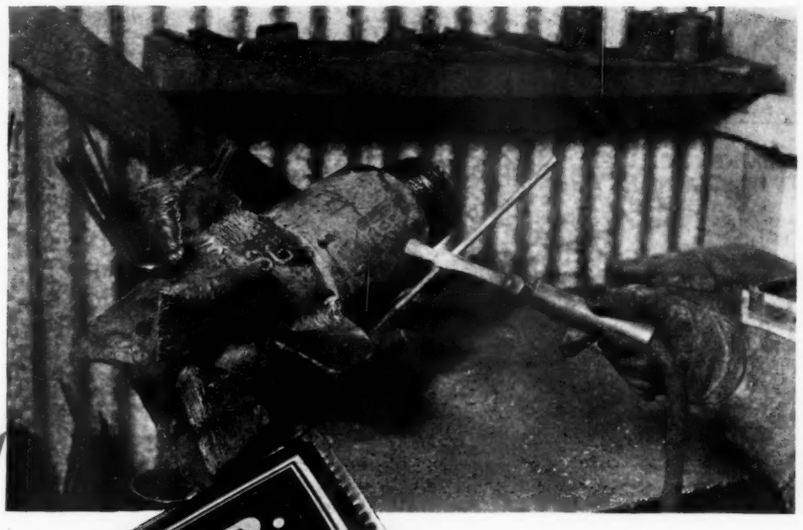

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Natural Gasoline Manufacture

WILL DISMANTLE FIRST PLANT IN SEMINOLE AREA

The first natural gasoline plant in the Seminole Field of Oklahoma which was built by the Independent Oil & Gas Co. in 1926 is to be dismantled according to an announcement of the past week. A contract has been closed by the Independent company and the Sinclair Oil & Gas Co. by which the latter company will run the gas now going to Independent's plant to its No. 12 plant located in the Seminole City Pool. In exchange for this gas the Sinclair company is shutting down its plant in the South Little River Pool of the Seminole area turning over the gas to the Independent company which operates a plant in this section.

It is expected that as the gas supply in the greater Seminole area decreases that several companies will find it expedient to follow the exchange plan adopted by the Sinclair and Independent companies. This arrangement it is pointed out does away with uneconomical operation of plants after the gas supplies have decreased and provides an orderly method of reducing plant capacity in line with field conditions.

The Independent plant which will be dismantled has had interesting history. In July, 1926, immediately after the Independent company had brought in the discovery well of the Wilcox sand in the Seminole Field the company moved a portable plant to the lease located in Section 26-9-6. The gas of the original well had a high gasoline content and operated at well pressure the portable plant made as high as 20,000 gallons of gasoline daily.

Later when the gas lift was necessary to flow the wells the portable plant was made a part of combination gas lift and gasoline plant. It has been operated continuously in that manner since July, 1926. The plant recently has been producing 7,500 gallons daily.

EXTEND GATHERING LINES TO NEW SEMINOLE WELLS

The Sinclair Oil & Gas Co. is laying gathering lines connecting its No. 12 plant in the Seminole City Pool of Oklahoma to a new well brought in on the Thompson lease in Section 18-9-6. The discovery well apparently has opened up a new pool and 10 wells are now drilling. The Sinclair company owns most of the acreage in that section and should additional wells be completed the company will build a plant in the field.

The company also is laying a line connecting its plant in the St. Louis Pool to the new well in Section 2-7-4. The company has completed a $250,000 water system in the Seminole area. The line runs from the Canadian River south to Section 3-9-7 and then southwest through Section 18-9-7, where it connects to the Sinclair water system which has been in operation for some time. The new line will have a capacity of 25,000 bbls. daily.

OKLAHOMA CITY PLANT

The Foster Petroleum Corp. of Bartlesville, Okla., is operating an oil absorption plant in Oklahoma County, Oklahoma, near the discovery well of the Indian Territory Illuminating Oil Co. H. V. Foster, who is president of the Foster Petroleum Corp., owners of the new plant, also is president of the Indian Territory company.

The plant, which is the oil absorption type, has a capacity of 10,000 gallons daily. The field location is N half SE Section 24-11n-3w. The company expects to increase the output of the plant when additional wells are completed in the Oklahoma City Field.

LARGEST NATURAL GASOLINE PLANT HAS MANY INTERESTING FEATURES

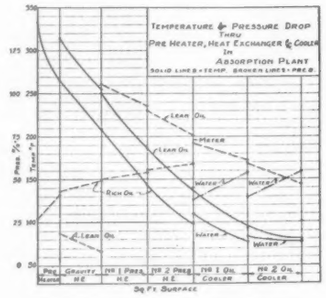
By W. L. Rifenberick and F. L. Kallam

The largest absorption plant in California if not in the world, in gasoline produced, is the distinction attained by a major oil company in the recent completion of a 102,000 gallon per day addition to their present absorption plant. The present output of this plant is over 185,000 gallons of natural gasoline per day. Additional compressors soon to be installed should bring the plant production up in excess of 20,000 gallons daily.

The new extension includes two complete distillation units with all necessary auxiliary pumping equipment, together with a cooling tower and boiler plant. No additional absorbers or storage facilities were required for this expansion. The new units stand somewhat apart from the old plant, as it is the intention of the oil company to eventually remove this section as conditions make it possible.

The new plant is operated on the same basis as the balance of the plant. That is, distillation is carried on at 20 pounds gauge and the condensers are operated "hot," or at such a temperature as to produce the desired grade of gasoline at this point (80 A.P.I., 88 per cent recovery). This naturally results in a large volume of uncondensed vapor, which in turn is handled by recompressors. The production from this source, made by recompressors, is approximately one-third of the plant output, and is stabilized before going to storage. The capacity of the installed vapor recovery system was sufficient to handle the additional vapor from the new units.

The new distillation units are operated separately and independently of one another. The condensers are located some 7 feet above the ground upon a platform partially supported from the fractionator column. This arrangement provides for


Temperature & Pressure Drop Thru Pre Heater, Heat Exchanger & Cooler In Absorption Plant
Solid Lines = Temp. Broken Lines = Pres.
Lean Oil
Water
Rich Oil
Pres. Lbs. Sq. In.
Temp. °F.
Pre Heater
Gravity H.E.
No 1 Pres. H.E.
No 2 Pres. H.E.
No 1 Oil Cooler
No 2 Oil Cooler
Sq. Ft. Surface

gravity flow of the condensate into the gasoline-water separating tanks below, where the water is removed from the product. It is also at this point that the uncondensed vapors are removed to the recompressors through the medium of a back pressure valve. The condensed product is pumped from this receiver tank to storage, a portion, however, being returned to the top of the fractionator for controlling the temperature of the vapors entering the condenser. The amount of the finished gasoline returned to the column is automatically governed by the temperature of the vapors leaving the column, and is about 2½ gallons for every gallon run to storage.

The gasoline reflux is introduced into the fractionator upon the top-plate, which is, as are all of the plates, of standard Southwestern parallel flow bubble cap type.

The lean oil in the base of the column is forced under the still pressure through a gravity-exchanger into the suction of the lean oil pump. The discharge of this pump is throttled by means of a float operated by the lean oil level within the still. Should this level rise, the throttle valve opens, permitting more oil to be circulated through the pressure exchangers, coolers, and towers. The frac-

(Continued on Page 135)

WEST COAST OPERATORS AGAIN INCREASE OUTPUT

One hundred forty natural gasoline plants in California with a daily indicated capacity of 1,805,000,000 cubic feet, report a recovery of 65,831,147 gallons of natural gasoline from 45,860,785,000 cubic feet of gas treated in March. This is an increase of 4,443 bbls. in daily average production.

Utilization of natural gasoline amounted to 1,591,891 bbls., an increase over February of 392,898 bbls. Daily average utilization of 51,351 bbls. was 789 bbls. more than daily average production of 50,562 bbls.

Stocks of natural gasoline at the end of March amounted to 1,311,111 bbls., of which 33,250 bbls. were reported by natural gasoline plant operators and 1,277,861 bbls. by refinery operators. This is a decrease of 24,483 bbls. under February stocks. This stock figure of 1,311,111 bbls. is approximately 25½ days' supply at the current rate of consumption.

California Natural Gasoline Production, Distribution and Stocks, March, 1929

(Production by fields)

Field—	Gas treated (thousand cu. ft.)	Natural gasoline produced (gallons)
Fullerton	581,771	1,329,038
Midway	3,114,843	5,392,552
Huntington Beach	1,502,813	2,979,560
Long Beach	12,219,839	20,880,421
Richfield	1,250,137	1,607,044
Santa Fe Springs	12,287,560	16,423,381
Seal Beach	2,400,521	3,369,463
Ventura Avenue	7,067,572	6,339,199
All other fields	5,435,729	7,510,489
Total	45,860,785	65,831,147

(Production)

Type of plant—	Gas treated M.c.f.	Natural gasoline produced (gals)	Gasoline recovery per M.c.f. gas treated
Oil absorption	33,752,088	46,521,758	1.378
Compressor	262,219	279,822	1.067
Combination Comp. and Oil Absorption	11,846,478	19,003,796	1.604
Drip		25,771	....
Total	45,860,785	65,831,147	1.435

	Bbls.
Finished gasoline produced at plants	290

(Distribution)

	Bbls.	Bbls.
Stocks first of month		1,335,594
Produced during month		1,567,408
Quantity mixed with crude or unfinished oils	116,439	
Used in blending at refineries	1,297,416	
Stocks end of month	1,311,111	
Used at plants, storage and evaporation losses	10,615	
Balance	167,421	
	2,903,002	2,903,002

(Stocks)

	Gallons or barrels	
Natural gasoline held by natural gasoline plant operators	1,396,492	33,250
Natural gasoline held by refiners	53,670,162	1,277,861
Total	55,066,654	1,311,111

A PRACTICAL SUGGESTION

SUPERHEATED STEAM

A few degrees higher temperature for the steam still in an absorption plant sometimes has a tremendous effect upon the stripping efficiency which in turn is reflected in the actual gasoline extraction from the gas. Under capacity steam lines, scaled boiler flues, inefficient steam preheaters are some of the causes for too low a degree of heat for oil in still.

To assist the steam preheater a direct fire preheater is used but this complicates the method of plant operation, constitutes an unnecessary fire hazard and its initial cost is expensive. A steam superheater is more suitable for this purpose.

Saturated steam is steam in its normal state. Its temperature is that due to the pressure under which it is formed; that is, its temperature is the same as that of the water from which it is generated and upon which it rests. Ordinarily commercial dry steam at the pumps or still will carry from 1 per cent to 6 per cent of water in entrainment.

Saturated Steam

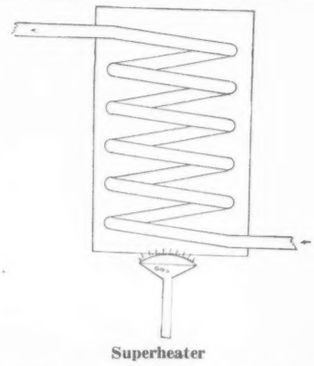
Pressure abs. lbs./sq. in.	Temperature °F.	Total heat B.t.u.
80	312	1,182
100	328	1,186
120	341	1,190
140	353	1,192
160	364	1,195

Superheated steam is steam at a temperature above that due to its pressure being further heated from some other source, after leaving the water from which it was made.

Superheated Steam

Pressure abs. lbs./sq. in.	Degrees of superheat total heat B.t.u. 50°	100°	200°
80	1,208	1,234	1,283
100	1,213	1,240	1,289
120	1,218	1,244	1,294
140	1,221	1,248	1,298
160	1,224	1,251	1,301

For a plant making 5,000 gallons or less, a superheater giving satisfactory results may be made from coiled 2-inch

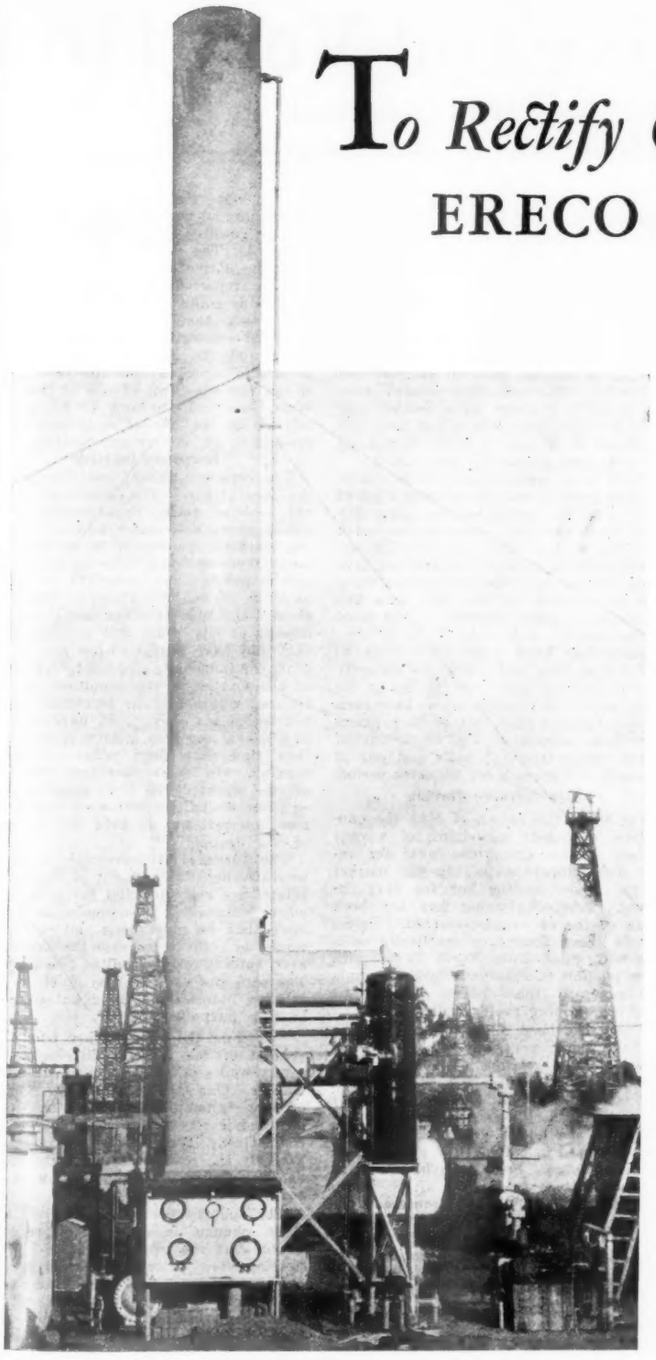


Superheater

pipe and one or two steel barrels with the ends removed may be used to guard the gas burner which sets under coils. For coils larger than 2-inch special made coils by a new process which gives uniform wall thickness can be used to advantage.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

To Rectify Gasoline Properly ERECO *Equipment should be used*



[Ereco 40,000 gallon rectifying unit, O. C. Field Gasoline Corporation, Lincoln Beach, California.]

The following analysis shows the product *before* and *after* rectification with ERECO Equipment

RAW GASOLINE

	Mol. %
Methane	.500
Ethane	3.340
Propane	23.000
Iso Butane	4.660
Normal Butane	35.500
Pentane Plus	33.000
	100.000

FINISHED GASOLINE

	Mol. %
Ethane	.000
Propane	.000
Iso Butane	2.240
Normal Butane	50.100
Pentane Plus	47.660
	100.000

DISCHARGE GAS

	Mol. %
Methane	1.845
Ethane	10.930
Propane	75.100
Iso Butane	9.940
Normal Butane	2.185
Pentane Plus	.000
	100.000

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Chicago Market Active and Very Firm

U. S. Motor Grade Advanced to 7⅝ Cents With Only Small Quantities Available at Less. Spot Buying Not Large

By J. B. Waldo

CHICAGO, Apr. 29.—The gasoline market opened the week active and very firm with the major refiners quoting all gravities of gasoline one-eighth cent higher. The price for the U. S. Motor grade was advanced to 7⅝ cents with only small quantities available at any lesser price. The spot buying was not large, although there were many small orders. Shipments were very heavy. One of the large nearby refineries stated that today might be the largest day in its history in shipments. These shipments included deliveries to its own stations and to its contract customers. Refiners are cautioning their sales representatives here to care for their regular customers first and in some cases, are limiting the quantity that may be sold to occasional buyers to a small number of cars. Buying for May account is believed to be light as many buyers feel the prices asked are more than the trade will pay at this time. Refiners argue that once the hangovers from the April purchases are closed out as they must be before the end of this week little gasoline can be had at lower prices. Many rumors were in the market of impending advances in the tank wagon market and these were not without influence in the price situation.

Market for Other Products

Outside of gasoline there were no particular changes in either demand or prices from the close of last week. Kerosene was neglected by buyers and prices were weak. Some of the large dealers in furnace oils were starting to quote on contracts for next season on the basis of the market date of shipment and replies from distributors indicated that there was much interest in these proposed contracts. Spot distillate quotations were easy and trade dragged. It was possible to buy a standard 38-40 distillate as low as 3½ cents. Gas and fuel oils were unchanged over the week end. The spot business was not large although there were quite a number of inquiries in the market from monthly and occasional buyers. The weather over the week end was generally favorable and early reports from distributors indicated a large gallonage.

Spot Market Less Active

The spot gasoline market last week was a little less active than it was earlier in the month. Nearly all buyers carry over their new business until after the beginning of the following month. There was some letup in the distribution in the territory as a whole owing to the heavy rainfall. Rain is not wholly a bad thing for the gasoline distributor. In the larger communities it seems actually to increase consumption as many persons are obliged to use taxis or bus instead of walking as they would in fair weather. The chief sufferers are the dealers in the rural communities and even in these the increasing mileage of improved roads makes it possible to use the automobile much more freely than formerly. The great impetus to gasoline consumption comes with the longer daylight, combined with warmer nights and then the vacation period.

There was disappointment last week over the comparatively small amount of buying in the spot market. Many wholesale marketers and some refiners who have depended on this buying for a portion of their business have not found the increased spot demand that they expected.

Many Sell Their Business

Several hundred independent jobbers in this territory have sold their business to some one of the major distributors. The Sinclair organization has been most agressive in expanding its distribution by this method. In addition to companies already announced as taken over by the Sinclair Refining Co., others have given options which are expected to be completed in the near future.

Other refiners are equally active in adding to their outlets of owned or controlled stations. The new concern of Cosden & Co., Inc., has secured distribution by control and part ownership of three distributors operating in Chicago and immediate vicinity which insures them a gallonage of at least 15,000,000 gallons annually and which they expect to expand materially.

Perhaps it is as well for the jobber who buys in the open market that the spot demand is no larger than it is for the refiners more and more are conducting their business so that they have their product engaged if not actually sold in advance. New refining organizations come into the market with their entire output under contract. Refiners who have a possible surplus—that is, who can run more gasoline than their own stations and contracts call for—are able to contract with other refiners whose possible output is less than their known requirements so that a much greater part of the gasoline output is engaged in advance for the remainder of the season.

There has been a distinct increase in the capacity of many of the older refining plants. The proposed refineries in the Calumet region near this city will not have a capacity equal to the actual increase made this year by the older plants in the same locality. The spot buyer may not be as pressed as last summer to secure supplies of good material during the coming summer, but there is no certainty of it.

Jobbers Carry Larger Supplies

From reports made during the past week it is evident that the average jobber is preparing to carry larger supplies by a material margin than last year. One large organization recently called on the phone over 50 well-known jobbers in various parts of the territory and inquired regarding their stocks and present business. The reports as to the gallonage indicated a rather small increase right now over last year but practically every one stated that he was carrying larger stocks and several stated that they had cars on their siding for which they had no room in their storage.

Some of these had bought for storage while others had accumulated the surplus from their regular deliveries which had been in excess of the distribution. They plan to add to their stocks as opportunity comes to them and to go into the touring season with as good supplies in hand and coming to them from refiners as they can conveniently contrive.

There are many jobbers with limited storage who can buy for brief periods only and must replenish their stocks frequently. These make up the rank and file of the buyers in the spot market. It always has seemed to many oil men that the average jobber will spend his money in almost every possible way before he will provide adequate storage while the larger integrated companies and the large refiners plan to have plenty of storage and to fill it at the right time Several refiners stated last week that the drain on their stocks at present was more active than they wanted it to be so early in the season.

Market Firm

The market while not active in the sense that a large number of new orders were placed was firm, with the price of U. S. Motor gasoline held at 7½ cents all the week. There was a lot of conversation regarding the advancing of prices and predictions of an 8-cent market by May with a tank wagon advance to follow and then a further upward movement as the demand developed.

Two things that seemed to influence the market against immediate advances were the wet weather and the rather free offering of surplus material at less than 7½ cents. The quantities offered were not large, but there were sellers who wanted to move gasoline which they had purchased at around 7 cents over April and have been unable to close out.

There is no great volume of this gasoline but there is enough to make a lot of smoke. It was estimated the other day that there were 12 cars on the track here that were in distress. Now 12 cars is not much gasoline and should not have much influence on the market but when they are pushed for sale they bulk like ten times as much material in the mind of the trade.

There has been some inquiry as to prices over May and while the majority of the refiners are loath to quote for more than 10 days some prices have been made. For the first half of May prices have been named of 7⅝ cents out of North Texas Group 3 basis and out of Group 3 of 7¾ cents for the same period.

Little Advance Buying

For the entire month of May the quotations were both one-eighth of a cent higher. These quotations were for resale and indicate an eighth-cent market to the jobber as the low for May delivery. Advance buying has not been large so far as can be learned. Prices out of West Texas are practically on a par with those from North Texas with some possible exceptions to large accounts but generally these plants report that they are keeping pretty well sold up.

There has been a little export buying of the higher gravities but the volume reported here has not been large. The local demand for these is rather inactive. Prices of the 60-62 437 endpoint have been increased by several refiners as they say that the added cost of the natural gasoline used in making this grade forced them to do so. Some who have sold at the same price as for the U. S. Motor are now asking 7⅝ to 7¾ cents and one refiner's price is 8⅛ cents for this grade.

The action of several major distributors in selling only an antiknock gasoline with practically a 60-62 437 specifications or even better at their stations and to their contract customers is forcing some independent jobbers to offer a higher gravity than the regular U. S. Motor grade. At the same time there is a real demand for any possible product that will pass for a good motor fuel even if the specifications fall a little short of the full U. S. Motor.

Sharp Competition in Ohio

The aggressive effort of the Standard Oil Co. of Ohio to add to its gallonage in that State is resulting in local price cuts in many sections. The company not only is reducing its tank wagon and station prices to meet or go below competition but in some instances has increased the spread between the station and the tank wagon prices and it also allows the contract buyers a margin of 3 cents a gallon. Some Ohio gasoline is also available for points in eastern Michigan where it can be sold at prices less than 7 cents Group 3 basis.

Some of the plants in the Calumet region just across the border in Indiana are competing for this business with the Ohio plants and occasionally there is a shipment out of western Pennsylvania. It may be remembered that a year ago one of the first indications of the gasoline shortage came with the inquiries from Ohio and western Pennsylvania buyers of gasoline for quotations out of Group 3. The demand did not last beyond the active season.

It is reported that more California gasoline is going into the eastern market this season than last year through established connections between the West Coast and the Atlantic Coast refiners. It is also reported that the recent visit of the vice president of one of the large West Coast units to New York was with relation to the sale of some part of its product to an eastern organization.

Kerosene Inactive

The kerosene market has disappointed the local trade. The consumption has not been as active as expected. Practically every distributor and every tank car marketer purchased in advance and today there is much kerosene offered for sale at prices much below the quotations made by the major refiners of 6½ cents. Good Oklahoma 41-43 kerosene is freely offered at 6¼ cents and resellers state that they have bought as low as 6 to 6¼ cents for immediate shipment. One aspect of the market is the condition of some refiners who held their kerosene and did not sell when they could have done so at 6½ cents or even a little better. Now they find that their product is going begging. In some instances the local offices reported the true condition two or three weeks ago, but were told not to meet competition, to hold for the price of 6¾ cents.

The furnace oil movement is limited to scattering cars and few of them. Distillates are neglected and prices are easy where unchanged. No dealer is buying more than he must have and cut prices would do little to increase the local business, nothing to increase the consumption. The zero gas oils are also quiet. There is some industrial demand but little for heating purposes.

Fuel Oil Men Stocked Up

Most of the fuel oil distributors are pretty well stocked up and are out of the market. One large contract for zero oil over six months was placed last Saturday and is reported to have gone at 2 cents Group 3, to a West Texas refiner. Possibly the price was not quite as low as that figure, but a quotation of 2 cents did not get the business.

The spot buyer of zero gas oil finds little change in the prices regularly quoted but the competition for business develops low prices. Refiners are not offering freely of this product and assert that their stocks are in good position but some familiar with the condition of supplies in the Mid-Continent Field state that there are more than ample stocks of zero gas oils.

Straightrun gas oils of the 32-36 and the lower gravities are in light demand from gas companies, the buyers being the smaller concerns and those who purchase from month to month. Some of these are now in the market for May. Their requirements are reduced by the short nights and warmer days. Cracking is not at its height in fact some refiners are just starting their cracking plants according to their local representatives but they are holding for the time when they will find it desirable to operate the cracking plants.

There is no real change here in the gas oil situation but gas makers are holding back their orders and operating largely on storage. Their former buying price of 2½ cents has been reduced in the mind of buyers. They do not state what price they will buy, but that before they get ready to place orders they expect lower prices to rule.

Moving on Contract

Fuel oils are moving largely on

(Continued on Page 135)

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FOR SALE, 242 acre Lease with 7 producing oil wells, large power, about 4 bbls. daily production, can be greatly increased, with many proven locations to drill, Trenton Rock, 1,100 ft., located in Indiana. Box C-904, The Oil and Gas Journal, Tulsa, Okla.

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H. F. Anthony, Anthony Bldg., Pecos, Texas.

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Eastern Market Shows Upward Trend

Favorable Weather Conditions Increase Gasoline Consumption Throughout East Coast Territory. Lubricating Oils Higher

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Apr. 29.—Favorable weather conditions have made for a further gain in gasoline consumption throughout the East Coast territory this week, and the market is showing an advancing tendency. Standard Oil Co. of New Jersey continues to quote 9 cents per gallon for U. S. Motor in tank car lots at refineries, but with this exception, the market appears fairly well held at 9¼ cents by other refiners. Lubricating oil prices are again higher, and the market is closely sold up on practically all grades of cylinder stocks. There have been no changes of outstanding significance in other divisions of the market.

East Coast oil interests are still centering their attention on the status of the curtailment program. The meeting of the A.P.I. directors here this week was well attended but its decision to co-operate with the Federal Oil Conservation Board, and hold its own program in abeyance, left the situation with respect to curtailment almost as much "up in the air" as it was following the ruling of the Attorney General some weeks ago.

Notwithstanding the unsettled status of the conservation movement at the moment, however, sentiment among eastern oil men is generally inclined to the belief that the situation will be adjusted in time. Regardless of the ultimate outcome of the present negotiations, it is felt, the evils of unrestrained competition in production have been so glaringly shown up that the industry will never get back to conditions which were prevalent a few years ago.

As a result of this viewpoint, eastern oil men generally look for a fairly good market situation over the summer months. Refinery operations, however, will be so regulated as to avoid the accumulation of heavy excess stocks of gasoline and other products, and in this manner the progress of the market back toward a more stable position will be aided in every way possible by the larger interests here.

The one fly in the ointment, from the viewpoint of eastern refiners, is the promise of greatly intensified competition in gasoline marketing throughout the East this year, due to the larger number of large interests operating here, and it is safe to say that serious concern is felt in some quarters regarding the outlook in this respect.

Gasoline

Standard Oil Co. of New Jersey continues to quote U. S. Motor gasoline here at 9 cents per gallon, although an advance to at least 9¼ cents by this seller is looked for any day. Other interests are still quoting the market at 9¼ cents, and are talking a 9½-cent market for the next week or so in the event that business holds up as well as at the present. California U. S. Motor is quoted here at 9¼ cents, on a par with Eastern U. S. Motor, but it is probable that a quarter cent differential, such as prevailed last summer, will be re-established on the Pacific Coast product. In fact, it is indicated in some quarters that a half-cent differential in favor of the California product may be established.

Handlers of the western gasoline, however, are refraining from any advance of this character for the time being, pending a more definite indication as to how heavily Richfield and Shell will ship California gasoline to their eastern distributing organizations this summer. With these two companies making a bid for the gasoline business in the East, it may prove impossible for other operators to maintain a differential on the California product, and other handlers do not wish to take a step now which may later prove to be a tactical error.

Jobbers are ordering forward tank car shipments in larger volume this week, and are filling up their tankage in anticipation of a general increase in the gasoline market. Consumption has shown a marked gain throughout the entire eastern area, due to the more favorable weather conditions which have prevailed this week.

Tank Wagon Gasoline

There have been no general changes in the eastern tank wagon price structure this week, although it is expected that a seasonal increase in the quotations will be made shortly, possibly within the next fortnight.

The complex situation created in the marketing end of the business this year by the entry of Marland, Shell, Richfield and Pan American into the distributing picture in a larger way may possibly retard the upward movement, however. Pan American has been an important factor in certain sections of the East in past years, but will be a much larger seller this season due to the opening of its new refinery at Aruba, which will have a very heavy gasoline output.

There is still some disturbance in the price basis in upstate and New England markets, with business booked at a few cents under the established market for the remainder of the territory, but much of this local cutting has been eliminated, and the larger marketers are making an effort to get the market back upon a firm foundation for the start of the summer motoring season.

Kerosene

Water white is in firmer position here. Standard Oil Co. of New Jersey is still quoting the market firm at 8½ cents per gallon, with other sellers booking at a quarter to a half cent under this figure.

Demand has shown considerable improvement during the past few weeks, and refiners report that tank car movement is picking up. While the export demand has been lagging somewhat, domestic business has been heavy enough to more than offset this, and current holdings at East Coast refineries are by no means excessive.

There have been no developments of outstanding interest in the kerosene tank-wagon situation, prices remaining unchanged throughout the territory. There is some talk of a pending advance in the export price basis, but thus far no increase has materialized.

Lubs

Refiners are still holding back stocks from the market on some grades, while it is reported from the field that actual shortages exist on other qualities of cylinder stocks. Prices have shown further advances throughout the list this week, and the market is nominal in many respects. Demand from the domestic compounding trade has broadened appreciably this week, and foreign buying is holding up well. The current price advance came about too rapidly to permit of much speculative activity, although it is believed that some cars of bright stocks are being held in the East here for a further advance.

Quotations on spot this week are as follows—600 steam refined, 40 to 41 cents per gallon; 635 steam refined, 42 to 44 cents; 650 steam refined, 47 to 48 cents; 600 Pennsylvania flash, 50 to 51 cents; 630 Pennsylvania flash, 55 to 56 cents; 600 Warren E, 41 to 42 cents; 600 Oil City E, 40 to 41 cents; bright stocks, light, 60 to 61 cents; bright stocks, dark, 58 to 59 cents.

East Coast marketers are getting a heavy volume of business on package lub oils, and a number of the principal factors in this area are now featuring lubs in their advertising, advising motorists to drain off their crankcases in preparation for the summer motoring season.

Paraffin Wax

The market is evidently oversupplied with spot wax, and an easy undertone predominates on all grades. On 120-122 a.m.p. sellers quote 4¼ cents per pound, with the possibility that this figure could be shaded by an eighth. Quotations on other grades are unchanged from last week. Crude scale, 122-124, is off 10 points at 3½ cents per pound, with buyers bidding 3¼ to 3⅜ cents.

Export inquiry is fair, but buyers' views are generally too far under current asking prices of refiners to permit of much business being done. A number of small refiners are reported to have accumulated considerably larger than normal holdings of paraffin, and it is sales pressure from this quarter which has tended to weaken the general market structure during recent weeks. This condition is prevalent both locally and at the Gulf, it is reported here. There is very little speculative interest being shown in wax at the moment, and operators are carrying but light stocks.

Petrolatum

Snow white is moving out in somewhat better volume this week, and the market is steady at 8½ cents per pound. Lily white is still priced a cent under this figure, and is holding its own as to demand. Amber is moderately active at 3½ cents per pound, with extra amber a quarter cent per pound higher. Dark green is still rather sluggish.

Pharmaceutical consumption of petrolatum is holding up fairly well for this season of the year, with the white grades moving well against contracts. Refiners look for a continuance of this condition well into the summer months, considerable contract business for later delivery being carried on producers' books.

Manufacturers of special lubricating products are taking moderate quantities on the spot position, and consumption from this quarter is expected to pick up steadily as the motoring season develops, and the demand for gear and other motor lubricating compounds picks up.

Diesel Oil

There is a good demand from marine interests and the market holds steady at $2 per barrel, in bulk, at refinery terminals, and $2.065 a barrel barged alongside within the harbor limits. One seller is quoting 10 cents over this figure.

According to an estimate by a leading refiner in this area, marine consumption of Diesel oil during 1929 in East Coast territory may reasonably be expected to show a gain of at least 25 per cent over totals for 1928, with a strong probability that the figure may go even higher. Refiners in this area are stepping up production to keep abreast of the growing demand, but are still handling the situation rather carefully to avoid the accumulation of excess stocks. The differential in price between bunker "C" and Diesel oil is now materially wider than that of former years, and refiners realize that any material output of Diesel oil in excess of immediate consumptive requirements would probably tend to force values to lower levels.

Industrial consumption of Diesel oil i still rather of small proportions, althoug some progress in developing the use o this oil in industries is being made Strangely enough, refiners in this ter tory are showing considerable optimis in the outlook for Diesel oil in aviatio and believe that before many years co sumption of this fuel in airplane moto will be an important factor in the ma ket situation.

Fuel Oil

Bunker "C" is unchanged at $1.05 p barrel at terminals, and $1.10 barg alongside within the harbor limits. few interests are still talking the pos bility of a higher market in the ne future, but leading refiners, commenti on this, say that there is still "plen of bunker 'C' oil" available. The strong market at the Gulf, resulting in a rece price advance, has tended to strengthe confidence in the local market positio and principal sellers are all firm at t listed price.

With the Shipping Board turning o a number of its vessels to the Uni States Lines, refiners in this area h turned their attention to the possibili of getting some of the fuel oil busine on this tonnage. The Gulf Oil Co holds the contract for supplying t Shipping Board with all of its East Co requirements for the three years, 192 31, inclusive. The price named in th contract is very low, 97 cents per bar barged alongside in the harbor, in t local market. This is 13 cents un the open market quotation, and the pr which other large marine interests paying here.

While naturally no official announc ment has been made, it is understo here that Gulf Oil will continue to sup the Shipping Board vessels under th new management, with suitable provisi in the contract clauses to protect b the seller and the buyer in the ev of any pronounced price change in eit direction. As the situation stands present, the contract is a good one fr the standpoint of both buyer and sel giving the United States Lines an sured supply of bunker oil at a pr substantially under the open market, giving Gulf Oil a ready outlet for large production of bunker fuel oil fr its heavy Venezuelan crude output.

There is no change in the fuel situation with respect to industrial m kets. Demand is holding up fairly w the cheapness of bunker "C" in c parison with other fuels making continued heavy consumption. The mand for this oil for heating purp is naturally falling off, this being seasonal development.

Gas Oil

The situation here is less firm, ow to a falling off in consumption of t oil industrially. Standard Oil Co. New Jersey is now quoting 5¼ c per gallon, against its former quota of 5½ cents, while other sellers tinue to hold the market at 5 to cents per gallon. The demand for oil in the open market has fallen considerably, due to the fact that artificial gas companies have slack off their consumption and are ge sufficient deliveries on their reating tracts to take care of their current

Lower grades of gas oil are still able down to 4¾ cents, with some reported moving out at a quarter under this figure for consumption furnace oil. Stocks of straightrun oil here are not large, and refiners a tendency to store this stock for for their cracking batteries later in season. The recycled product, how is fairly plentiful. According to

A.P.I. statistics, gas and fuel oil stocks east of the Rocky Mountains showed a gain of 282,000 bbls. during the month of March. The statistical position of the market for these oils, however, is materially better than was the case at the start of the year, due to smaller production and the record consumption of various grades of furnace oils during the first quarter of 1929.

Export Markets

A strong tone rules in export gasoline, and prices are firmly maintained both here and at the Gulf. Three inquiries for cargo lots of high gravity gasoline are in the market this week, all for shipment to France. The big English suppliers are mostly all under contract with American sources of supply on their current requirements, which explains the comparative lull in buying for shipment to Great Britain. California gasoline for export has firmed up, with Navy quoted at 7½ cents, 400 endpoint at 8½ cents, and 375 endpoint at 9 cents per gallon.

Export kerosene has come in for better inquiry this week, and the market position is improved. With the domestic situation firming up somewhat, export operators are inclined to look for a boost in the export schedule, and some quiet buying is in progress in anticipation of such a development. Prices on cased stocks remain withdrawn.

Export marketers are evidently still short in their requirements of lub oils, and the demand for cylinder stocks for shipment abroad continues heavy this week, with further price gains recorded. France is buying lubs in fair volume, and there is also a good demand reported for shipment to England. South American buyers are taking stocks of lub oils in fair volume, and a good movement to South Africa is still in progress.

Foreign wax buyers are exerting bearish pressure on the market here and evidently expect to cover on their requirements later on at prices substantially under the present spot basis. Both pale scale and fully refined grades are dull and rather soft in tone this week.

Fuel oil has been selling in better quantities for export during the past few weeks, the revival in export buying being traceable to the stronger market position for this oil and the evident upward tendency at the Gulf.

There have been no developments of outstanding importance in the situation with respect to export sales of other refined products.

Petroleum Exports

The following table shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	April 20	April 13	April 6
Gasoline	138,000	60,000	854,900
Naphtha	1,720,000	357,600	1,833,200
Kerosene	83,000	20,000	1,253,400
Fuel oil	37,500	166,300	126,900
Lubricating oil	2,460,400	1,555,800	974,700
Petroleum, refined	3,070,400	647,900	2,396,500
	Pounds		
Petrolatum			
Paraffin wax	1,627,500	745,300	1,498,200
Refined	226,200		
Scale	75,000	776,200	335,000
Lubricating grease	1,290,600	1,329,800	651,800

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended April 20, totaled 425,000 bbls., a daily average of 60,714 bbls., against 247,000 bbls., a daily average of 35,286 bbls. for the week ended April 13, and a daily average of 73,535 bbls. for the four weeks ended April 20. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	78,000
New York	150,000
Philadelphia	197,000
Total	425,000
Daily average	60,714
Daily average four weeks	73,535

There were no receipts at Gulf ports during the week.

Total distribution of California oil exports is as follows:

Gasoline	355,000
Fuel oil	70,000

The week's receipts of California gasoline in the East were more than double those of the preceding week, due largely to the arrival of 197,000 bbls. of California motor fuel at Philadelphia.

It is expected that shipments will show further gains as the season progresses, and the position of the eastern market for U. S. Motor gasoline strengthens further. At the present basis of prices, California U. S. Motor cannot be laid down at eastern ports much under the prevailing spot price in the open market here, and naturally there is little open market activity discernible.

Imports

Imports of crude and refined oils at the principal United States ports for the week ended April 20 totaled 2,128,000 bbls., a daily average of 304,000 bbls., compared with 2,297,000 bbls., a daily average of 328,143 bbls. for the week ended April 13, and a daily average of 319,500 bbls. for the four weeks ended April 20. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	219,000
Boston	335,000
New York	889,000
Philadelphia	543,000
Total	1,986,000
Daily average	283,714
At Gulf Coast ports—	
New Orleans and Baton Rouge	142,000
Total	142,000
Daily average	20,286
At all United States ports—	
Total	2,128,000
Daily average	304,000
Daily average four weeks	319,500

Included in the arrivals at New York for the week were the following shipments:

To Standard Oil Co. of New Jersey, 118,000 bbls. of Montrolite from Mamomal, 1,117,000 bbls. on the J. A. Moffett from Mamomal, 112,000 bbls. on the F. H. Hillman from Mamomal, and 115,000 bbls. on the Charles Pratt from Las Piedras.

To Gulf Refining Co., 80,000 bbls. on the Agwimex from Las Piedras, and 95,000 bbls. on the Gulfpenn from Las Piedras.

To Mexican Petroleum Corp., 69,500 bbls. on the Paul H. Harwood from Aruba.

To Mexican Atlas Petroleum Co., 75,000 bbls. on the Clement Smith from Tampico.

To Pan American Petroleum & Transport Co., 76,000 bbls. on the J. C. White from Aruba.

CHICAGO MARKET OPENS ACTIVE AND VERY FIRM

(Continued from Page 130)

tract so far as the larger users are concerned. Many of them state that they are under contract to June or July 1. Takings are rather above normal as the chief users, the railroads, steel and auto industries, are all busy. The buyers who place monthly orders for fuel oils are in the market for their May requirements and considerable business will be placed within the next few days. The occasional buyer for present needs is also generally in the market for normal or better quantities with few exceptions.

There have been only small changes in the quoted prices. Premiums for low cold test oils have disappeared, but the oils low in sulphur command a decidedly higher price than those high in sulphur. On the 18-22 gravity there was a difference in price between the high and low sulphur oils of 10 cents a barrel last week and the tendency seems to be rather towards a possible increase in this spread for the less desirable fuels are in much better supply than the low sulphur, low viscosity material.

With warmer weather more of the oils with a high viscosity are usable and generally speaking the supply is increased through the added usefulness of these oils that comes with higher daily temperatures. It is still rather too chilly nights in this locality for the heaviest fuel oils to be readily used. The demand for fuel oils for heating purposes is about over and with the absence of this demand the premiums paid for the higher gravities are gone. The increase in the prices of Central State crudes made by the Ohio Oil Co., on Friday of last week was without effect on the market except that it imparted some feeling of confidence.

Lubricating Oils Move Steadily

Lubricating oils are moving steadily and in good volume. Prices are higher with practically all sources of supply. Bright stocks continue strong. Many local oil men considered the advance in Ohio and other Central West crudes as reflecting the condition in the lubricating oils rather than in gasoline or heavier products. With refiners holding for 32 cents for bright stocks, sales have been made at higher prices, of course in a smaller way than on contracts for car lots. Some refiners, but not with a large production of bright stocks are asking 33 cents for Mid-Continent oils. Compounders report an excellent business in motor oils and say that their industrial business is also good.

There was no general change in tank wagon prices over the Standard Oil Co. of Indiana territory last week. The jobbing trade is hoping for an advance asserting that with the increase in refinery prices for gasoline, there should be one. Some of the major refiners are anxiously awaiting such a change. They say that the motoring public will not object to a reasonable increase in gasoline costs.

A leading executive for a large integrated company stated last week its balance sheet showed that while the production and refining departments were showing a profit the station business was barely getting by without a loss. He stated that material was charged to the stations at the same price as to contract customers and he asserted that the distributing business was ably managed.

Several of the local distributors have stated that their April business was running 20 per cent ahead of last year, but this is above the average over the territory and it will run according to more general estimates around 15 per cent.

Some points in the territory are still in rather bad shape on account of local price cutting, but the situation is believed to be improving. Price cutting is going on in this city but less openly and in a less general way than formerly.

NATURAL GASOLINE PLANT HAS MANY FEATURES

(Continued from Page 128)

tionation obtained with this column has been very satisfactory.

The cooled lean oil leaving the exchanger passes directly to the coolers, of which there are two to a unit. In the case of these coolers, as well as the two sections of each condenser, the water side is in parallel. The excellent performance of this exchanger equipment is not obtained at the expense of high pressure drop as is usually the case. (See Figure 1 for graphical representation of temperature and pressure throughout exchanger equipment.) This is only one of the many items in this plant which brings about the marked economy of the entire unit.

Steam Preheater

The steam preheater handles the rich oil from the gravity exchanger to the still. The oil passes through the tubes of this equipment, the final oil temperature being controlled automatically by the amount of steam admitted to the heater. Condensate from the heater is removed by a balanced lever valve, located in the outlet line, operated from float functioning from the condensate level within the heater. The water so discharged passes directly to the boiler plant pressure hot well.

It should also be mentioned that water removed from the gasoline-water separator and the dehydrator on the still flows into a common open oil-skimmer box. Should oil or gasoline still be contained in the water at this point, it is removed here, and the pure water flows by gravity into the suction of a small centrifugal pump located in the pumphouse. The discharge of this pump is governed by remote control from the liquid level in the skimmer-box, and the discharged water introduced into the hot well.

Probably one of the most interesting features of this plant is the pumping equipment. This consists of three complete units manifolded in such a fashion that the center unit acts as a standby for the other two. Thus in each unit the water, rich oil, lean oil and gasoline pumps are all connected on one shaft to the steam-turbine prime-mover. These turbines take steam at 190 to 200 pounds initial pressure and exhaust it at 30 pounds into a common exhaust header. Steam from this header, after passing through separators, is used in the stills. Thus all the steam used in the new units, except that used in the preheaters, passes through the turbines before entering the stills. As now operated, only 83 per cent of the steam used for pumping is required in the stills, the excess being used in the older sections of the plant.

When circulating 850,000 gallons of lean oil per day per unit, the actual operating B.h.p. of each turbine is 195, and the water rate 50.6 pounds per B.h.p. hour. These pumps are operating without cavitation and are in every respect satisfactory. In fact, the use of the usual duplex steam pumps for this series would have increased the water rate to such an extent that the boiler plant would have had to be increased 65 per cent.

Cooling of the water for the distillation units is handled by means of an atmospheric type cooling tower located several hundred feet from the rest of the plant. This tower, of twenty-five 6-foot sections and 45 feet high, cools the 3,000 gallons per minute of circulating water.

The plant is excellently equipped in regard to metering equipment, which of course facilitates operation and permits of obtaining top efficiency at all times. For instance, recording flow meters are located on the main steam line, boiler feed line, boiler fuel line, gasoline line to storage, water make-up lines to boilers and cooling tower and boiler blow down. The latter are only for the purpose of recording each time the boilers are blown down. Indicating flow meters are used on steam to still, oil to each unit (both lean and rich oil) as well as total circulation, uncondensed gasoline vapor, water to coolers, water to condensers, total water and reflux to fractionator.

Indicating industrial type thermometers are installed on all lines to and from each piece of equipment, while in addition, recording thermometers are provided in the following instances: lean oil from water to coolers, rich oil to still, and vapors to condensers.

The usual accompaniment of indicating gauges are installed on both suction and discharge side of pumps, still, dehydrator and steam lines. Also pressure gauge connections are provided for use at all points where test data may be required. Sample connections are installed so that oil, gas and gasoline samples may be readily and conveniently obtained. This point is even carried so far as to provide thermometer wells on each plate of the fractionator column, as well as sample connections in both the liquid and vapor space at each plate.

Comparisons are never fair, however, it should be noted that one-fourth the space required for the old plant is used by the new plant for the same production. The new units require only 12.3 pounds steam per gallon of gasoline produced. In addition it has been possible to consistently strip the oil to a greater degree than formerly, meaning a greater extraction of gasoline from the gas.

Two things have reduced the manufacturing cost of the gasoline. First, a lower capital investment, due to greater heat transfer and a smaller boiler plant resulting from use of turbine driven centrifugal pumps with their reduced steam rate and method of exhausting into the still. Second a lower operating cost, due to the automatic control and again to the use of centrifugal pumps.

NEW WELL IN SUMATRA

A new well has recently been opened on the new concession of the Bataafsche Petroleum Mij. at Rantau in the district of Tamiang, Sumatra. The well has a daily capacity of 110 tons.

Solve West Texas Gasoline Problem

Burford Oil Co.'s New Refinery Meeting Usual Motor Fuel Specifications in Processing Winkler County Crude Oil

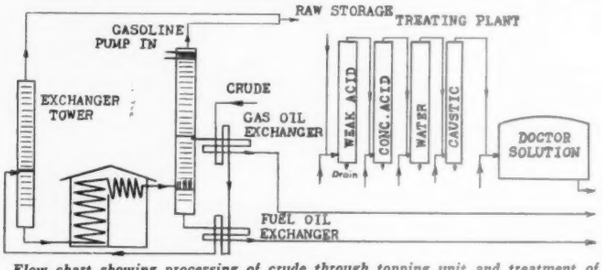
By W. T. Ziegenhain

Typical of the newer refineries entering the West Texas area, the Burford Oil Co.'s plant at Pecos has practically solved the problem of excessive corrosion on equipment and established a high standard of quality of the products made from the high sulphur-content Winkler County crude, by rather simple revisions in the ordinary methods of operation. The problem of reducing the sulphur content of the gasoline to pass the U. S. Motor specification of .1 per cent was solved by limiting the production to 410 endpoint and heavily treating this with sulphuric acid and doctor solution according to a very definite procedure. A high quality gasoline resulted, combining the high antiknock value, characteristic of West Texas gasolines, with greater volatility as well as passing the other specifications ordinarily required of motor gasoline.

Distilling Equipment

At present, the crude runs at the Burford Oil Co.'s plant are being maintained at 5,500 bbls. of Winkler County crude daily, all of which is charged to a single topping unit having a capacity of 7,000 bbls. The only products made are gasoline, a light gas oil and fuel oil. The gas oil, as made at present, has found a ready market as a furnace oil because of its volatility and low cold test and might be classed as a kerosene distillate.

Tracing the processing more in detail, and referring to the accompanying flow



Flow chart showing processing of crude through topping unit and treatment of gasoline. Burford Oil Co. refinery at Pecos, Tex.

chart, the crude is shown as entering the unit by first passing through a gas oil exchanger and then through the fuel oil exchanger after which it enters the exchanger tower where a light gasoline cut is flashed off. The remaining crude is pumped through the pipe still where the additional heating is sufficient to completely strip it of gasoline and at the same time a stream of light gas oil is taken off the tower.

The crude leaves the second exchanger at about 350 degrees Fahrenheit, which is sufficient to distill off about 65 per cent of the total gasoline and this light cut has an endpoint of between 340 degrees and 350 degrees. The exchanger tower is 6 feet in diameter and 56 feet high, insulated and contains 12 bubble cap sections above the point where the crude enters and three stripping sections below this point. A liquid level control on the base of the tower for the crude inlet maintains a constant volume of oil in the base of the tower, tending to maintain continuous, even and effective fractionation in the upper portion of the tower.

The portion of the crude remaining, which is about 83 per cent of the total charged, is pumped through the pipe still where the temperature of the outgoing stream is raised to 660 degrees. The still contains one hundred eighty 30-foot, 4-inch nickle-chromium-steel tubes supplying 5,000 square feet of heating surface. Recirculation of the hot stack gases is done with a Lientz system.

Leaving the still, the partly topped crude passes into the stripping section of the fractionating tower. This tower is 7 feet in diameter and 62 feet high, it contains 15 bubble cap sections in the upper part of the tower to clean the overhead naphtha or heavy gasoline cut and below this is a tray and three more bubble cap sections at which point the light gas oil is continuously taken off. In the bottom section of the tower, a reboiler effect is secured. The hot crude enters this reboiler section in which 3-inch pipe risers standing 3 feet high are supported on a plate. These risers serve as inlets to the bottom section of the tower as the liquid level rises above the upper ends of the pipes. The unvaporized portion of the crude is pumped out of the base of this tower through the one exchanger and is run to storage as fuel oil. In a similar manner, the light gas oil cut is passed through the other exchanger, giving up its heat to the incoming crude and after condensing is run to storage as furnace oil or will be used as cracking stock in the two 2,000-bbl. Jenkins pressure units nearing completion.

Yields Skimming

The skimming yields obtained from the Winkler crude at the Burford Oil Co.'s plant will vary within the following limits:

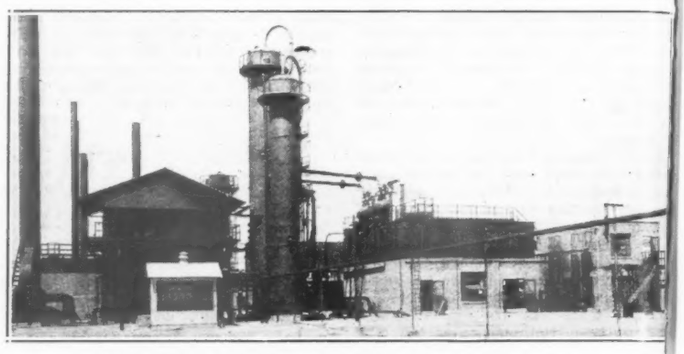
Gasoline	25 to 26 per cent
Gas oil	31 to 32 per cent
Fuel oil	41 to 42 per cent
Loss	1 to 2 per cent

The gas oil has a gravity between 30 to 32 and an endpoint less than 600 degrees. Its pour point is considerably below zero. The sulphur content of the gas oil ranges between .75 and 1 per cent. The fuel oil produced ranges between 16 degrees and 18 degrees gravity, has a pour point below zero and contains up to 2 per cent sulphur. All of this fuel is topped crude as produced now but after the cracking units are started the topped crude and the cracked fuel will be blended for the market. As mentioned previously, a cut of light gasoline is taken off of the exchanger tower and the balance of the gasoline yield is taken off the pipe still tower, as a relatively heavy naphtha. These two streams are run into a common receiving tank and are treated together.

Ammonia Injected

Before discussing the method used in treating, it should be mentioned that a preliminary treatment is given the gasoline vapors in the form of an ammonium hydroxide wash, accomplished in drums set just ahead of the condensers. These drums may be seen above the condensers in the picture showing the topping unit.

The gasoline vapors from each fractionating tower enters a separate drum, the vapors being led to the base of the drum and made to pass through a baffling arrangement where they are thoroughly washed with a stream of ammonium hydroxide, made by spraying in cold water and injecting anhydrous ammonia. The amount of ammonia used is easily regulated and the proper amount is determined by sampling the water coming over with the gasoline stream in the receiving house. Enough is supplied at all times to keep the water slightly alkaline. This water is taken from and returned to the refinery condenser water system. As a result of the water and ammonia wash, much of the free hydrogen sulphide gas, liberated during the heating and distillation of the crude, is neutralized, the soluble ammonium sulphide being continuously removed with the water. Corrosion of the condenser tubes has not been noticeable thus far, and the plant has been operating since February 1.



General view of topping unit showing ammonia treating drum.

Treatment for Gasoline

After this preliminary treatment, intended more to minimize corrosion of the condensors, the gasoline is run to raw storage and from here is continuously charged to the battery of four treating tanks connected in series. A picture of the treating tanks shown here includes eight tanks, four of which are used in treating the finished gasoline and the other four will be used to treat the pressure distillate after the Jenkins units begin operating. Behind the tall treating tanks may be seen four 5,000-bbl. tanks where the gasoline receives the doctor treatment.

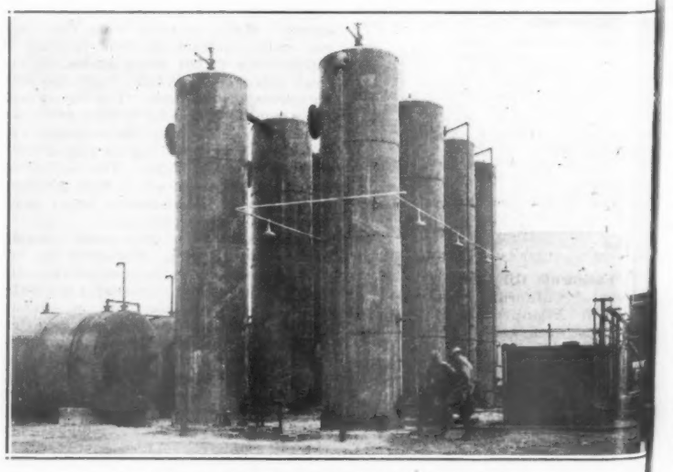
In operation, the raw gasoline is continuously pumped through a mixing Y and into the first tank at a point about one-third distance up from the bottom of the tank. A stream of dilute sulphuric acid of about 25 gravity or 28.3 per cent acid and amounting to 50 pounds of solution per barrel of gasoline, is pumped through the other leg of the Y and the acid and gasoline are thoroughly mixed in the short riser and run into the first treating tank which also acts as a settling tank for the acid. The volume of the tank is sufficien to retain

the velocity of flow and complete separation of the acid and gasoline is easily accomplished.

The acid is continuously drawn off from the bottom and reused after bringing it up to the required strength. The acid is necessarily handled in lead pipes and lead-lined equipment. The gasoline is taken from the top of the first treating tank through a second mixing Y and into the second treating tank. This time pounds per barrel of 66 gravity or 9[illegible] per cent acid is mixed per barrel of gasoline and these are run into the second tank where the acid settles out along with the sludge. This partly spent acid is used in turn in bringing the weaker acid up to the required strength. The gasoline is then charged into the third treating tank and instead of using chemicals, as in the first two treatments, the gasoline is given a water wash.

Sulphur Washed Out

At this point of the treating procedure it is interesting to note the volume of the sulphur washed from the gasoline by the water. A picture is shown here of



Treating tanks for gasoline and pressure distillate.

drain box into which the wash water empties and the heavy coating of sulphur on the concrete may be readily seen.

The value of the water wash is evident, but as yet, the chemical reactions are not clear. J. J. Thomas, president of the company and general superintendent of the plant, explained that deposition of sulphur as due possibly

the oxidation of the hydrogen sulphide by the concentrated sulphuric acid wherein free sulphur and water result. This free sulphur remains suspended in the gasoline and is precipitated out by the action of the cold water. This is accomplished to such a degree as to make the 4-inch stream of wash water distinctly turbid and yellow in color. It is possible too, there is some benefit being derived from the use of the particular well water found in that locality, but this still remains as a possibility rather than a fact. The water used has a natural hardness amounting to 180 to 240 grains.

After the gasoline receives this water wash, it is transferred to the fourth tank in similar manner where it is given a caustic and doctor wash, the amount averaging one-half pound of caustic per barrel of gasoline. From here the gasoline goes to a larger tank where the doctor solution has a chance to complete its action on standing. These tanks alternate in service, one being run into continuously while the other is settling or being emptied to furnish gasoline storage for shipment.

Jenkins Units

By May 1, one of the new Jenkins pressure units will be placed in operation and about June 1 the other unit will be placed in operation. Because of the relatively high sulphur content of the gas oil charging stock and the accompanying difficulties in treating high sulphur content cracked oils, the company has provided for making a pressure distillate. It is the plan of the company to treat the pressure distillate from the Jenkins units in about the same manner the refinery gasoline is treated. It might be necessary to give the cracked gasoline a light separate treatment, but it is the plan now to blend the raw cracked and straightrun gasolines together in proportion to their relative production and treat them together in a manner similar to that described for the straightrun alone.

Rerunning the pressure distillate will be done in a shell still operated continuously. The still is equipped with a 6 by 30 tower filled with 15 bubble cap trays. Both the towers on the rerun still and the topping unit are equipped with open gasoline sprays for control of the quality of the production. A portion of the gasoline stream is run through a separator set just outside the condensor as shown in the picture of the topping unit.

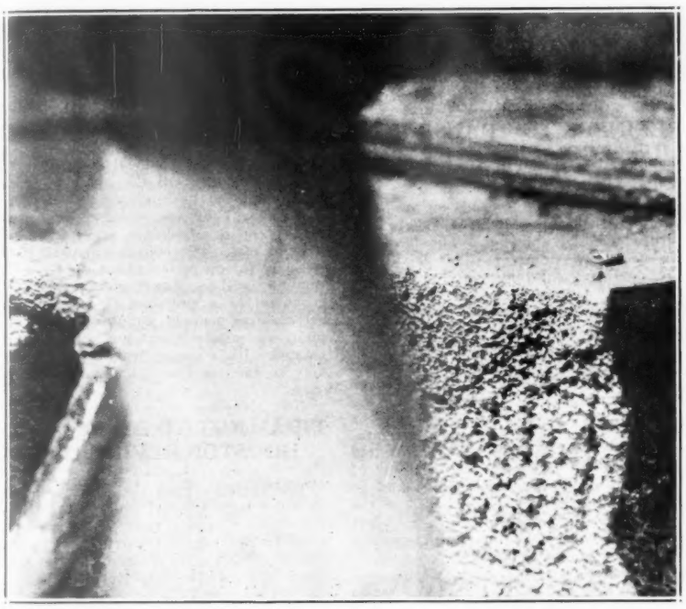
This separator is simply an 8-inch pipe about 6 feet long, closed at both ends and divided into two compartments by a plate two-thirds the way down from the top. The gasoline and water come into the separator on one side of the plate, are directed downward and as the flow passes down the one compartment and up through the other, the water separates out at the bottom and is drawn off. The gasoline continues its flow upward and accumulates in the top of the second compartment. Suction is taken here for the pump-in over the tower and any excess passes on to the receiving house through an overflow line.

Balance of Equipment

The balance of the equipment and the operation of the Burford Oil Co.'s plant is conventional. All tanks are painted with aluminum to resist corrosion from hydrogen sulphide gases and to minimize evaporation losses. The company maintains its executive and sales offices on the plant site as well as the operating offices. Ample grounds have been reserved for the expansion of the plant when warranted and the equipment has been separated and aligned to permit the addition of units in any phase of the plant's operation.

Shipments are made in the company's own cars and an 80-car rack, equipped with large oil lines and hinged steel runways to the cars facilitates quick loading. Most of the transfers are done with motor driven centrifugal pumps but steam is supplied for the balance of the pumping and for general plant use by two 150-horsepower boilers.

The Graver Corp. built the plant in accordance with the specifications drawn by the Burford Oil Co. and turned the plant over to them for operation, with the exception of the cracking units, on February 1.



Deposition of free sulphur in drain box showing benefit of water wash.

GULF COAST MARKETS

HOUSTON, Tex., Apr. 30.—Gulf Coast refinery markets opened this week showing very little change. Fuel oils, although continuing a fair tank car demand, were still unsettled with quotations easy and subject to concessions. With one of the former major sources of fuel oil still out of the market and using its own production as refinery fuel and for cracking stock it is not likely there will be any immediate easing up in the fuel oil supply, marketers stated Tuesday, and the price trend is upward.

A. A. BEARD RESIGNS

A. A. Beard, vice president and general manager of the Tidal Oil Co., has resigned, effective May 1, due to ill health. E. H. Salrin, president of the company, will act as general manager also until Mr. Beard's successor is named.

SUCCESS IN CONSERVATION SURE; REAL PROGRESS MADE SAYS FARISH

By W. S. Farish
President, Humble Oil & Refining Co.

Slowly but surely the industry is getting somewhere in its effort to control the flow of oil as well as its manufacture for the interest of the public as well as the industry.

It may take a short or long period to make it effective, perhaps a long period. But there is no disposition to abandon the work accomplished so far; neither is what has been accomplished wasted effort by any means.

There can be no question of the absolute necessity of petroleum products to the business and social life of the nation. Hence, there should be no quarrel with a legitimate effort on the part of the oil industry to promote and seek to put in force methods which not only will insure the supply of oil for a longer period of time but as well will have the products of oil put to work in those avenues of consumption for which they are best suited.

I feel the work done so far for oil conservation, both by the Government and the industry, is a big step forward in reaching the desired goal. To begin with, it has taught American oil men—or at lease a great majority of them—to think along national lines. It has brought home to the American public the absolute necessity of conserving such a valuable resource as our oil supply.

The industry and the public alike, I believe, have come to understand the absurdity of bringing to the surface unwanted supplies of crude oil. Such operations can only mean waste in the sense that these methods leave too large a portion of the oil content in the ground. This can only be recovered and put to work at prohibitive costs. Such operations dissipate the highly valuable natural gas content, which makes lifting costs low, and requires the expensive storage above ground of oil that might well be left in its natural reservoir and brought out when needed.

I say the industry and the Government have gotten somewhere when people are thinking along these lines. The Government realizes the practical facts in the case and its efforts to bring about a realization of the effort—as a definite step to protect the nation's future interest—is of inestimable value to the country and the industry.

In a nutshell, the whole program of the industry is to arrive at a control of production which will prevent waste of gas and oil and keep the production total at a level where economically and fully it will serve the essential and higher uses for oil.

What would be the result of such a program? In time it would mean that no longer would 46 per cent of every barrel of oil go into consumption as fuel oil, the inferior product of petroleum.

With our present known methods of refining and an extension and improvement of present cracking facilities, there would be a gradual conversion of this 46 per cent fuel oil to a point where only 30 per cent of each barrel of crude would be fuel oil. The 16 per cent now consumed as fuel oil would be gasoline and this alone would raise the gasoline supply to the public by 40 per cent from the same amount of petroleum.

Improvement in the art of cracking, later on, would still further expand the supply of gasoline.

There would still be plenty of fuel oil for the higher uses of that product, such as fast steamships, househeating and for railroads not situated close to coal supply. But the volume of fuel oil now being burned, a great deal of it in needless competition with coal, is a waste of gasoline and nothing else.

This effort to insure the nation's future oil supply certainly should have the friendship of the coal industry. It should, likewise, have the support of the motor industry and of every man who drives a motor car or uses a motor truck in his business or a tractor on his farm. It should have the support of everyone engaged in the oil business either as an employe or an invester.

Finally, it should have the support of every citizen who wants to see such a valuable natural resource properly controlled to prevent waste of any description, whether it be in the uneconomic production methods, insufficient manufacturing to get the higher products or in points of consumption which are little short of waste.

From a long range view, there is no doubt that the industry is headed for better control of its production and the uses to which oil is put. Conservation does not mean reducing the supply below market needs. But it does mean the handling of producing areas so they will yield more oil than under present methods. And it does mean that a larger supply of oil over a period of years will be produced at less cost. And it does mean that oil products will be consumed in their proper channels.

A big known supply of petroleum is not a thing to be avoided. Rather it is an insurance to the industry of a certain supply of raw material and to the public at large of an assured supply of products for consumption. The folly is in producing unwanted supplies which can only mean waste in one form or another. This is what the oil industry is seeking to stop.

TEST IS DRILLING IN MADISON COUNTY, ARK.

The Independent Oil & Gas Co. is drilling a well in Madison County, Arkansas. It is in the center of a 15,000-acre block of leases assembled last summer. The structure was worked by government geologists in June, 1915, and is known as the Bushy Creek structure. It is 8 miles long and 3 miles wide and is in the Eureka Springs-Harrison Quadrangle. The well is located south of a series of faults that are very evident from the outcrops. The formations that are producing oil in Oklahoma are found on top of the ground in the northeastern part of Arkansas, just north of the well.

The nearest production is gas, in the Clarksville gas field and is 40 miles southeast of the block of leases held by the Independent. Some eight or nine gas wells have been completed in this field and range from 1,000,000 to 8,000,000 feet of dry gas. The gas from these wells is used to supply nearby towns. A number of deep dry holes have been drilled in the county but as yet no oil production has been found.

The Independent well is located in the NE cor., Section 6-16n-27w, and is known as No. 1 Banks. It is drilling in dolomite at a depth of 1,045 feet and will be carried to the granite before it is abandoned. They had the Misener sand from 350-60 feet dry. The first 310 feet the formation was Mississippi lime and had 1,000,000 feet of gas which has been bradenheaded and is being used as fuel to fire the boiler.

A log of the well follows:

	Feet
Mississippi lime	310
Chattanooga shale	350
Misener-chert	365
Simpson sand	445
Tiner (?)	464
Bergen (?)	615
Dolomite	1,045

LARGE ATTENDANCE AT CONVENTION EXPECTED

(Continued from Page 34)

East Ohio Gas Co. of Cleveland, Ohio, who will speak on "The Gas Industry—A Giant Servant."

While the sessions of the convention will not start formally until next Tuesday, the exhibits will be thrown open for public inspection on Monday and on that day the main technical and research committee and the managing and advisory committee of the department will hold meetings.

Brief Items for Petroleum Refiners

New Refinery at Aruba 50 Per Cent Completed And Partly Operating

NEW YORK, Apr. 27.—The new 110,000-bbl. refinery of the Pan American Petroleum Corp., at Aruba, Dutch West Indies, is now about 50 per cent completed and several topping units together with the treating and finishing facilities and electric power plant, are now in operation, according to T. S. Cooke, in charge of refinery operations for Pan American Petroleum & Transport Co., who has just returned from Aruba.

Outlining the present status of the refinery and the method of operation employed, Mr. Cooke says:

"The Pan American Petroleum Corp., a subsidiary of the Pan American Petroleum & Transport Co., has under construction a refinery on the island of Aruba, Dutch West Indies. The construction is about 50 per cent completed at this time and several topping units, together with the treating and finishing facilities and electric power plant, are now in operation.

"The refinery will refine crude oil from the Lake Maracaibo district production of the Lago Oil & Transport Co., Ltd. The crude oil is produced for the most part from lands lying under the surface of Lake Maracaibo. The oil after

(Continued on Page 152)

W. C. TEAGLE DIRECTOR OF I. G. CHEMICAL CO.

NEW YORK, Apr. 29.—W. C. Teagle, president of the Standard Oil Co. (New Jersey) in confirming the report that he will serve as a member of the board of directors of the newly organized I. G. Chemical Co. issued the following statement:

"This resulted from close and pleasant personal relationship of some years' standing with leaders of I. G. This action does not mean that the Standard Oil Co. (New Jersey) is departing from its basic policy of confining its activities and investments to the oil industry. It is not interested in the chemical business save to the extent that certain classes of the industry known as chemical are in reality departments of or inseparably connected with the present highly organized business of producing, transporting and marketing oil, natural gas and their products.

"The Standard Oil Co. (New Jersey) has no financial interest in American Chemical Corp. It has for some years past enjoyed very close relationship with certain branches of research work of I. G. Farben Industrie (I. G. dyes) which bear closely upon the oil industry. Two years ago it made a definite contract with the I. G. on this line and as recently announced it expects to broaden this relationship in the future."

JOHNSON OIL REFINING CHANGES IN OFFICERS

CHICAGO, Apr. 30.—At a meeting of the directors of the Johnson Oil Refining Co., James H. Johnson was elected chairman of the board to succeed the late Homer H. Johnson who for many years was the active head of the company. James J. Johnson formerly was president of the company.

Isaac H. Johnson was elected president of the company, G. C. Lilly, secretary and treasurer, and L. Ralph Johnson of Cleveland, Okla., vice president in charge of refinery operations. Mr. Lilly formerly was auditor and assistant secretary of the company.

A.P.I. TO ISSUE WEEKLY REPORTS ON CRUDE RUNS

NEW YORK, Apr. 27. — Following recommendations from the committee on records and statistics, the American Petroleum Institute will announce within a few days a plan for the compilation and dissemination of weekly statistics on crude runs to stills and gasoline, fuel and gas oil production and stocks. The gathering of these data each week, it is felt, will supplement the work of the Bureau of Mines, and will be of great value to the industry because of the comparative freshness of the statistics when issued. The work of the American Petroleum Institute in this respect will parallel that of the Bureau of Mines, and the data will be in the same form as that issued monthly by the government agency.

The advisory committee on record and statistics, it is reported, has been considering the advisability of weekly statistics for some time. This committee is composed of the following: John D. Gill, Atlantic Refining Co.; W. C. Allen, The Texas Company; O. S. Ambrose, Tide Water Associated Oil Co.; H. Armour, Pan American Petroleum & Transport Co.; James H. Brookmore, Shell Union Oil Co.; E. W. Isom, Sinclair Consolidated Oil Corp.; R. H. Johnson, Vacuum Oil Co.; A. J. McIntosh, Standard Oil Co. of New York; Joseph Pogue, consulting engineer; Frank S. Leitzel, Sun Oil Co.; E. P. Salisbury, Standard Oil Co. of New Jersey; A. M. Sands, Phillips Petroleum Co.; Warren Sinsheimer, Henry L. Doherty & Co., and Earl W. Wago, Standard Oil Co. of California.

The American Petroleum Institute, within the next few days, will issue a questionnaire to refiners throughout the country, in an effort to ascertain just how much co-operation it will be able to secure in the compilation of the data. It will take some time to check the matter over with individual refiners, it is indicated, and it will probably be a few months before the actual work of gathering and compiling the weekly data can be started.

LASALLE ELECTS OFFICERS

At a meeting of the directors of the LaSalle Petroleum Co. (formerly Noble Oil & Gas Co.) John A. Prescott of Detroit, Mich., was elected president of the company. W. J. Schnur, who has been in active charge of company operations for some time, was elected executive vice president. W. J. Coppinger was elected secretary and treasurer; R. B. Martin, assistant secretary and treasurer and Edwin Merrill Smith, chairman of the board.

BUYS FREEPORT REFINERY

HOUSTON, Tex., Apr. 29.—Sale of the Freeport Asphalt Co.'s plant at Freeport, Tex., to R. J. Wilkinson and a group of eastern capitalists has been completed. The plant, which has been shut down several years, has a capacity of 5,000 bbls. of crude daily. Arrangements have been made for a source of Venezuela crude and the plant will be completely remodeled at once. Mr. Wilkinson, one of the purchasers, and new head of the group, has been associated with the Pan American Petroleum Co.

BERRY MOVE OFFICES

CHICAGO, Apr. 27.—James B. Berry & Sons Co. have moved their Chicago office from the Straus Building at the corner of Michigan Avenue and Jackson Boulevard to the Tower Building at the corner of Michigan Avenue and Madison Street, where they occupy much larger quarters.

PURE ADDS GYRO STILLS

CHICAGO, Apr. 27. — The Pure Oil Co. is rapidly increasing the output of its Gyro process gasoline. Additional units have just been completed at the refinery at Heath, Ohio. The next refineries to be equipped with these stills will be those at Muskogee, Okla., and at Marcus Hook, Pa. The distribution of the Gyro gasoline is confined to the company's owned or controlled stations and none is being sold to other distributors. The demand is stated to be above the ability of the company to supply. The Gyro units are a vapor phase cracking process which refine a gasoline high in antiknock rating.

REFINERS TO TRANSPORT MUSKEGON CRUDE BY BOAT

Plans revealed this week indicate that a major portion of the crude oil produced in the Muskegon, Mich., Field in the future will be shipped by boat to refineries near Chicago. The Dixie Oil Co., operating subsidiary of the Standard Oil Co. of Indiana, and the Muskegon Oil Corp., pioneer developer of the Muskegon Field, have petitioned the city of North Muskegon, Muskegon County, and the city of Muskegon for a lease on the old Gow and Campbell lumber dock at North Muskegon.

Officials of the two cities and county in several conferences with representatives of the oil companies have indicated that they will lease separate portions of the old dock to both companies and to any others who wish to use it for the same purpose providing they do not destroy its beauties as a prospective lake front park.

The old dock is located on Muskegon Lake, which is tributary to Lake Michigan and has water of enough depth to allow tankers and barges to moor at its side with very little dredging. The Standard of Indiana plans to ship oil by tankers and the Muskegon Oil Corp. has signed a contract with the W. F. Simrall Co. of Cincinnati, recent purchasers of the Lemont Refining Co. plant of Lemont, Ill., near Chicago, for 2,000 bbls. a day or more.

The Shell Petroleum Corp. also plans to use tankers or barges to ship the oil to its refineries near Chicago and will start running oil not later than June 15. The initial price to be paid for Dundee crude by the Shell corporation is $1 a barrel for all shipped by boat and 70 cents for the 25 per cent that may have to be shipped by rail. Contracts are for 18 months with the same differential below Mid-Continent scale of 20 cents a barrel for boat shipments and 50 cents for rail shipments.

SNYDER BECOMES SALES MANAGER ROCK ISLAND

L. A. Snyder, for several years sales manager of the Champlin Refining Co., Enid, Okla., resigned effective May 1 to accept a similar position with the Rock Island Refining Co. of Duncan, Okla. Mr. Snyder has been connected with the Champlin company for a period of 11 years. Previous to his appointment as sales manager of the company he served as traffic manager and was also connected with the operation of the refinery for a time.

With the appointment of Mr. Snyder as sales manager, offices of the Rock Island company will be moved from Tulsa to Duncan. The company operates a refinery at Beckett near Duncan.

Charles Pepin has succeeded Mr. Snyder as sales manager of the Champlin company. Mr. Pepin has been associated with the company for the past six years in the pipe line department.

MUSKEGON REFINERS, INC. ANNOUNCE NEW OFFICERS

MUSKEGON, Mich., Apr. 29.—Officers and a superintendent for the former Fayette Refining & Storage Co.'s 500-bbl. skimming plant, which will be operated in Muskegon under the name of the Muskegon Refiners, Inc., were announced this week. Officers are: President, Charles H. Latimer; vice president, E. B. Dake; secretary, Harris E. Galpin, and treasurer, H. H. Cornelius. All but the last mentioned are of Muskegon. Mr. Cornelius is a Grand Rapids resident. Officers with the following comprise the board of directors: Dr. George L. LeFevre of Muskegon, A. V. Smith of Lexington, Ky., and Gerald J. Wagner of Grand Rapids.

W. L. Merchant of Detroit, formerly with the Beacon Oil Co. of Boston, has been employed as engineer to supervise the removal of the former Lexington, Ky., plant to Muskegon and to fill the position of superintendent when the plant is ready for operation about July 1. The company will pay the prevailing price for crude oil or a premium if necessary to get a large enough supply to keep the plant in steady operation. It will be started with a capacity of 500 bbls. and may be increased to 1,500 bbls. if necessary.

TIDAL NOT TO BUILD HOUSTON REFINERY NOW

The Tidal Refining Co. which has purchased a large tract of land on the Houston Ship Channel does not expect to start the immediate construction of a refinery according to officials of the company. No definite date has been set for the construction work to start but it is not believed that plans will be completed before the end of the year.

The Tidal company last week acquired a 700-acre tract on the channel 15 miles east of Houston. The tract has a 4,500-foot frontage on the channel.

MINNESOTA TAX INCREASE

CHICAGO, Apr. 27.—The law increasing the gasoline tax from 2 to 3 cents per gallon takes effect in Minnesota on May 1. The law provides the tax must be paid on all gasoline in dealers' storage at the close of April. No allowance is made for shrinkage. The Minnesota Petroleum Association has asked the attorney general for a ruling allowing a shrinkage of 2 per cent. At the time that the first gasoline tax became effective no shrinkage allowance was made and the expectation is the attorney general will rule payment must be made on the full quantity in storage at the close of April.

TO HOLD FALL CONGRESS

CHICAGO, Apr. 27.—The Independent Oil Men of America, at the meeting of the trustees, decided to hold its second annual Marketing Congress at the Stevens Hotel, Chicago, on October 21, 22 and 23. The suggestion that it hold its fall meeting in connection with the National Oil Show was rejected, it was stated, on advices from its exhibitors that they preferred the plan of exhibiting at a gathering of the oil men of the organization.

SINCLAIR BUYS OIL COMPANY

CHICAGO, Apr. 27.—The Sinclair Refining Co. has bought and will operate the oil jobbing business of the Green Bay (Wis.) Oil Co. The Green Bay Oil Co. has bulk plants at Green Bay and Pulaski and 10 owned or controlled stations in the vicinity of its bulk plants.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

OLEUM FOR REFINING MINERAL OIL

What is oleum? Has it a chemical name? Describe very briefly the oleum process of refining mineral oil for medicinal purposes? If you cannot give information on this subject, please recommend book containing this information and where it can be obtained. Is there any other known method of removing all coloring matter from mineral oil?—V. G.

Oleum is from the Latin, meaning oil, and in the early days of chemistry sulphuric acid was called oil of vitriol because it was made from green vitriol, or iron sulphate. Various sulphates being known as vitriols because of their glassy appearance, such as blue vitriol-copper sulphate, and green vitriol, for example. In recent times a concentrated form of sulphuric acid is called oleum; a better name is commercial fuming sulphuric acid.

Pure concentrated sulphuric acid has a Baume gravity of 66 degrees and a specific gravity 1.8354 at 60 degrees Fahrenheit. This is what is sometimes known as 100 per cent oil of vitriol. Oleum usually contains free sulphurous anhydride, sulphuric anhydride, and sulphuric acid. An analysis of a sample may be represented by sulphuric acid 12.50 per cent; sulphuric anhydride 85 per cent, and sulphurous anhydride 2.50 per cent. An acid of this composition would be equivalent, approximate, to 119 per cent sulphuric acid or 128 per cent 66 degree acid.

The medicinal white oil may be made from selected lubricating oil stock and is usually given a very heavy treatment with oleum, ammonia, and alcohol, in addition to washing with water and filtering. The methods for making this kind of oil are covered by numerous patents.

Gruse, Petroleum and Its Products, page 126, states: "Condrea found that reduction in color, sludge production and sulphur content of sludge all reached a maximum with 100 per cent acid; increase in SO_3 content to 20 per cent brought about increases in production of sulphur dioxide and sulpho acids. It is difficult to correlate these experiments, in which the action of acid alone is considered, with recent practice in the production of colorless pharmaceutical oils, because the latter are subjected to drastic filtration. It is generally understood, however, that the use of fuming sulphuric acid will produce a more nearly colorless, odorless, and tasteless oil than will ordinary concentrated acid."

Gurwitch-Moore, Petroleum Technology, page 339, gives the statement following: "The manufacture of entirely colorless, water white oils without smell or taste (paraffinum liquidum, white oils, etc.) is well known to be impossible with concentrated sulphuric acid alone, requiring the use of oleum, and if Condrea obtained a worse color with oleum than with concentrated sulphuric acid this must be because the decolorizing power of oleum is only fully exerted when the least resistant substances have been preliminarily removed from the distillate by the action of concentrated sulphuric acid. Under certain circumstances oleum, besides its principal refining action, may give rise to the formation of colored and evil smelling products of sulphonation soluble in mineral oil. In such cases after treatment with oleum the oil must also be washed with small quantities of concentrated sulphuric acid, which extracts such substances." . . . . . "The use of sulphur trioxide itself in the form of vapor diluted with indifferent gases, instead of oleum, has been recently proposed."

MIXED GAS USE AND COMPOSITION

What is mixed gas and what kind of gases are contained in the mixture?—N. G. L.

Mixed gas is the name given to the blend containing natural gas and one or more of the artificial or manufactured gases. There are two reasons for making mixtures of this nature. The most important one is the fact that in some sections which have long enjoyed natural gas, the volume of gas now available is not adequate to meet increased demands nor to supply the needs of the consumers when extraordinary quantities are wanted, such as during very cold weather, so it has been necessary to increase the natural supply by the addition of manufactured gas. The second reason is that there are several industries which make a gas as a byproduct and to permit it to be discarded is a needless waste, especially where there is a use for it in the manner indicated.

The use and distribution of mixed gas was discussed in an article by H. C. Blackwell in the March issue of Natural Gas, page 10, from which the material below is quoted.

"Mixed natural and manufactured gas is distributed in quite a number of cities with complete success. In Cincinnati we are equipped to mix natural gas with any or all of the manufactured gases as follows: Producer gas containing approximately 140 B.t.u. per cubic foot and 0.71 gravity. Blue gas containing approximately 270 B.t.u. per cubic foot and 0.65 gravity. Carbureted water gas containing approximately 550 B.t.u. per cubic foot and 0.64 gravity. Coke oven gas containing approximately 530 B.t.u. per cubic foot and 0.40 gravity.

"We maintain our city supply of mixed gas the year round at between 850 and 900 B.t.u. per cubic foot and endeavor to keep it as uniform as possible.

"The natural with blue gas mixture has a specific gravity of about 0.65; while the natural with coke oven gas mixture has a gravity of about 0.55, and this variation seems to be sufficiently small to cause no trouble in the finely adjusted burners made use of by some of our industries."

CARBON DIOXIDE IN NATURAL GAS

Questions have been discussed as asked by J.W.W. in the March 14 issue and by R.A.C. March 28, involving the removal of carbon dioxide from certain natural gases. Additional information below is submitted by—W. D. W.

I have had occasion quite recently to go rather fully into the technique of removing carbon dioxide by scrubbing, from other gases, and felt that if R.A.C. had control of a well yielding gas of the composition stated, it might be made a commercial proposition, and that the possibility of this would justify a thorough investigation of the procedure to be followed.

Since CO_2 is much more readily absorbed by water or taken up in chemical combination by alkaline solutions, removal of the CO_2 rather than removal of the hydrocarbon gases from the predominant CO_2 is suggested. Issuing from the ground at a pressure of 600 pounds scrubbing by water could be efficiently employed. At 40 atmospheres, one cubic foot of water will absorb 35 c.f. of CO_2. The water in the bottom of the scrubber under a pressure of 600 pounds will, discharged through a Pelton wheel, generate as much power as could be obtained with an equal volume of water at a head of 1,350 feet. With release of pressure, the CO_2 will bubble off as it does from a glass of soda water, and could be conserved. All but 5 to 10 per cent of the total CO_2 being absorbed out, the residue would be a combustible gas well suited for use in a gas engine, and would supply power in excess of that required to pump the water into the scrubber not supplied from the Pelton wheel.

As you are no doubt aware, there is a new industry which appears to have passed the development stage, in which CO_2 in solid form is produced for use as a refrigerant under the name of dri-ice. In the plants now operated in Chicago and New York, coal is burned to produce the power needed in operating the plant. The CO_2 is obtained from the combusion gases by absorption, employing a bicarbonate of soda solution, which by taking up additional CO_2, becomes the carbonate. This being heated, yields up the CO_2 and is regenerated to bicarbonate. But where the gas is already compressed, water would appear to be the more economical absorbent.

If the men who are seeking information have supplies of CO_2 gas, not too distant from the areas where CO_2 compressed in cylinders or as dri-ice, could be sold, they have something of potential commercial value. A well supplying a somewhat larger per cent of combustible gas sufficient, burned in gas engines, to operate the plant which affects the freezing of the CO_2, would be an ideal source in commercial form, as the plant could be made almost automatic in operation, and there would be scarcely any expenditures other than the cost of plant and a small payroll.

COMPRESSOR CYLINDER CAPACITIES

I would like to have the rule for calculating daily gas volume from the size of the compressor cylinders and would appreciate it if you will tell me where to find this, but it would be much help if you would send me an outline of the rule.—T. E. S.

Capacities are frequently calculated from the size of the cylinder, stroke, and revolutions. The directions for making this calculation are to be found in many of the handbooks; the directions below are from Natural Gas Handbook by Diehl, page 385.

"The capacity of compressor cylinders of different diameters, is shown in the following table, based on actual volumeteric efficiency of 80 per cent. Values are the quantity of gas in cubic feet in 24 hours, compressed by a cylinder of 1-inch stroke, running at one revolution per minute with intake pressure at 14.4 pounds per inch absolute. The diameter of the cylinder is indicated in the table as D of C.

DofC	Multiplier	DofC	Multiplier	DofC	Multiplier
10	99	20	410	30	930
11	121	21	454	31	995
12	144	22	499	32	1,060
13	171	23	545	33	1,130
14	199	24	595	34	1,197
15	231	25	646	35	1,270
16	262	26	698	36	1,342
17	295	27	753	37	1,418
18	333	28	810	38	1,498
19	370	29	869	39	1,577

To ascertain the quantity of gas compressed by a cylinder of any diameter, running at a given number of revolutions per minute, with the intake at atmosphere, multiply the number corresponding to the diameter taken from the table, by the length of the stroke in inches and by the number of revolutions per minute. If the intake pressure is at any value other than atmosphere, multiply the quantity as obtained above by $(p + 14.4)/14.4$ to obtain the quantity at atmospheric base pressure (where p is the actual intake pressure in the line in pounds per square inch gauge)."

GASOLINE FROM COAL USED IN AIRPLANES

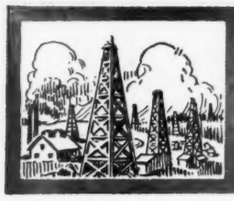
There have been numerous articles published in the last few years suggesting that a suitable liquid motor fuel may be produced from coal and I would like to know if a real gasoline of this nature has been made and used in a large way?—J. W. R.

There are several processes which treat coal in different ways for the production of a volatile liquid that has been demonstrated to possess properties similar to gasoline and suitable for use in the ordinary motor. Some plants for coal conversion have been built in Europe, and a motor fuel said to have been derived from coal, is reported to be in use in Germany. A recent demonstration of the motor fuel value of gasoline from coal was that made early in February, according to a report from London, with airplane engines. These engines were run for about two weeks at the Stag Lane Airdome.

Apart from an unpleasant odor, which may eventually be reduced by a treating process, technical men say they have found no appreciable difference so far in performance. There is no reason to suppose that the new fuel will not be suitable for aircraft, and if it is it will ultimately meet the requirements of every other type of internal combustion engine.

The new "gasoline" is a "cracked" product—that is, one obtained by altering the chemical composition of heavy oil under pressure and temperature to produce so much gasoline and so much oil of the heavier grades.

New methods for the low temperature carbonization of coal have, it is said, produced a crude oil ideally suitable for "cracking." In addition there are produced smokeless radiants, fuel and a gas which also produces a small quantity of gasoline by treatment. Since July, 1927, one British low temperature carbonization plant alone has produced 1,850,000 gallons of crude oil and 160,000 gallons of gasoline, which have been purchased by automobile supply companies.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Apr. 30		Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.07¼	.07⅜	.07⅛	.07¼	.07	.07¼
56-58 450 endpoint	.07½	.07⅝	.07⅝	.07¼	.07	.07¼
58-60 450 endpoint	.07¼	.07⅜	.07¼	.07⅜	.07	.07¼
*58-60 437 endpoint (U. S. Motor)	.0756		.0752		.0741	
*60-62 437 endpoint	.078		.075		.0771	
*60-62 400 endpoint	.0812		.0787		.0786	
*64-66 375 endpoint	.085		.085		.0841	
68-70 360 endpoint	.08¼	.08½	.08¼	.08½	.08¼	.08½
64-66 437 endpoint (blend)	.07½	.07⅝	.07½	.07⅝	.07½	.07⅝

*Weighted average prices April 29, 22 and 15 as reported by representative refiners. Sales to jobbers only.

NORTH TEXAS—						
56-58 450 endpoint	.07⅛	.07¼	.07	.07¼	.06¾	.07
58-60 450 endpoint	.07⅛	.07¼	.07	.07¼	.06¾	.07
58-60 437 endpoint (U. S. Motor)	.07⅜	.07½	.07¼	.07⅜	.07⅛	.07⅜
60-62 400 endpoint	.07½	.07⅝	.07⅝		.07½	.07⅝
64-66 390 endpoint	.07⅜		.07⅜		.07⅝	.07¾
64-66 375 endpoint	.07⅞	.08	.07⅞	.08	.07¾	.08
68-70 360 endpoint	.08⅛	.08¼	.08⅛	.08¼	.08⅛	.08¼
64-66 437 endpoint (blend)	.07¼		.07¼		.07¼	
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.07¾	.08	.07¾		.07¾	.08
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.07¾	.08	.07¾		.07¾	.08
PENNSYLVANIA—						
52-54 Naphtha	.08¼	.08½	.08¼	.08½	.08¼	.08½
54-56 Naphtha	.08⅛	.08¾	.08½	.08¾	.08½	.08¾
58-60 Gasoline	.09¼	.09½	.09¼	.09½	.09	.09¼
60 gasoline	.09½	.09¾	.09½	.09¾	.09¼	.09½
62 Gasoline	.09¾	.10	.09¾	.10	.09¾	.10
64 Gasoline	.10¼	.10½	.10¼	.10½	.10¼	.10½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09	.10	.09	.10	.09	.10
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.07¼	.07⅜	.07	.07½	.07	.07¼
56-58 450 endpoint	.07¼	.07½	.07	.07¼	.07	.07¼
58-60 437 endpoint (U. S. Motor)	.07⅝		.07½		.07⅜	.07½
60-62 400 endpoint	.07⅜	.08	.07⅜	.08	.07⅝	.07⅞
64-66 375 endpoint	.08⅛	.08⅜	.08⅛	.08⅜	.08⅛	.08⅜
68-70 360 endpoint	.08½		.08⅜	.08½	.08¼	.08½
64-66 437 endpoint (blend)	.07½	.07⅝	.07½	.07⅝	.07½	.07⅝
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08½		.08½		.08½	
60-62 400 endpoint	.09½		.09½		.09½	
61-63 390 endpoint	.09¾		.09¾		.09¾	
64-66 375 endpoint	.10		.10		.10	

NATURAL GASOLINE

	Apr. 30		Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07⅜		.07⅞	.08	.08	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07⅜		.07⅞	.08	.08	
Grade B, 76-83.9, 375 e.p., rec. 85%	.07½		.07⅝	.07¾	.07¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.07½		.07⅝	.07¾	.07¾	
Grade C, 80-90, 375 e.p., rec. 78%	.07¼	.07⅜	.07½		.07½	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¾		.07⅞	.08	.08	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07¾		.07⅞	.08	.08	
Grade B, 76-83.9, 375 e.p., rec. 85%	.07½		.07¾		.07¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.07½		.07¾		.07¾	
Grade C, 80-90, 375 e.p., rec. 78%	.07¼	.07⅜	.07½		.07½	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.08¼		.08¼		.08¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.08		.08		.08	
Grade C, 80-92, 375 e.p., rec. 78%	.07¾		.07¾		.07¾	
CALIFORNIA—						
75-78, 375-390 endpoint	.08	.09	.08	.09	.08	.09
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07⅜		.07⅞	.08	.08	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.07¾		.07⅞	.08	.08	
Grade B, 76-83.9, 375 e.p., rec. 85%	.07½		.07¾		.07¾	
Grade BB, 84-92 375 e.p., rec. 85%	.07½		.07¾		.07¾	
Grade C, 80-90, 375 e.p., rec. 78%	.07⅝		.07½		.07½	

BURNING OIL

	Apr. 30		Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.06⅛	.06⅜	.06½	.06⅝	.06⅝	.06¾
41-43 water white kerosene	.06⅛	.06⅜	.06½	.06⅝	.06⅝	.06¾
NORTH LOUISIANA—						
41-43 water white kerosene	.06¾	.07	.07	.07¼	.07¼	
NORTH TEXAS—						
41-43 water white kerosene	.06	.06⅛	.06⅛	.06¼	.06⅜	.06½
40-42 water white kerosene	.05¾		.06		.06¼	
ARKANSAS—						
41-43 water white kerosene	.06¾	.07	.07	.07¼	.07¼	
PENNSYLVANIA—						
43 Kerosene prime white	.07	.07¼	.07¼	.07½	.07¼	.07½
45 Kerosene water white	.07¼	.07½	.07¼	.07½	.07¼	.07½
46 Kerosene water white	.07⅜	.08	.07⅜	.08	.07⅜	.08
47 Kerosene water white	.08¼	.08½	.08¼	.08½	.08¼	.08½
300 Mineral Seal	.07¾	.08	.07¾	.08	.07¾	.08
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.06½	.07	.06½	.07	.06½	.07
Engine distillate, 43-44, 445 endpoint	.07½	.08½	.07½	.08½	.07½	.08½
Engine distillate, 42-44, 480 endpoint	.07	.08	.07	.08	.07	.08
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.06⅛	.06¼	.06¼	.06½	.06½	.06¾
42-44 water white kerosene	.06½	.06⅝	.06⅝	.06⅞	.07	.07⅛
GULF COAST (Export)—						
41-43 prime white	.07¾		.07¾		.07¾	
41-43 prime white	.08¾		.08¾		.08¾	

FUEL OIL

	Apr. 30		Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.50	.52½	.50	.55	.50	.55
18-22 Fuel Oil, per bbl.	.55	.60	.55	.60	.55	.60
22-26 Fuel Oil, per bbl.	.57½	.62½	.60	.65	.60	.65
24-26 Fuel Oil, per bbl.	.62½	.67½	.65	.70	.65	.70
26-30 Fuel Oil, per bbl.	.82½	.87½	.82½	.87½	.82½	.87½
28-30 Fuel Oil, per bbl. (industrial)	.85	.90	.90	.95	.90	.95
32-36 Gas Oil (industrial)	.02½	.02⅝	.02½	.02⅝	.02⅝	.02¾
32-36 Gas Oil (straw color)	.02⅝	.02¾	.02¾	.03	.02¾	.03
36-38 Distillate	.03⅛	.03¼	.03¼	.03½	.03½	.03¾
38-40 Straw Distillate	.03½	.03⅝	.03½	.03¾	.03¾	.04
NORTH TEXAS—						
Below 20 Fuel Oil	.60	.65	.60	.65	.65	.70
24-26 Fuel Oil, per bbl.	.65	.70	.65	.70	.70	.72½
32-36 Gas Oil (straw)	.02¾	.02½	.02⅝	.02¾	.02¾	.03
38-40 Straw Distillate	.03¼	.03½	.03½	.03¾	.03¾	.04
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
32-36 Gas Oil	.02¾		.02¾		.02¾	
ARKANSAS—						
33-36 Distillate	.03	.03¼	.03¼	.03½	.03¾	.03⅞
32-36 Gas Oil (straw)	.02⅝	.02¾	.02⅝	.02¾	.02¾	
16-22 Refinery Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
GULF COAST (South Texas)—						
Gas Oil	.03½	.03¾	.03½	.04	.03½	.04
Bunker C Fuel (cargo lots), per bbl.	.75	.85	.75	.85	.72½	.75
Bunker C Fuel (small lots)	.95	1.00	.95	1.00	.95	1.00
PENNSYLVANIA—						
30-34 Fuel Oil	.04¾	.05	.04¾	.05	.04¾	.05
36-40 Fuel Oil	.05¼	.05½	.05¼	.05½	.05¼	.05½
CALIFORNIA—						
33-36 Distillate	.04¼	.04¾	.04¼	.04¾	.04¼	.04¾
26-32 Distillate	.03½	.04	.03½	.04	.03½	.04
15-20 Fuel Oil, Bunker (at tide water)	.65	.85	.65	.85	.65	.85
15-20 Fuel Oil (cargo lots), per bbl.	.70	.85	.70	.85	.70	.85
27 plus Diesel, per bbl.	.90	1.05	.90	1.05	.90	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.67½
18-22 Fuel Oil, per bbl.	.52½	.57½	.50	.55	.52½	.57½
28-30 Fuel Oil (zero)	.95	1.05	.95	1.05	1.00	1.05
32-36 Gas Oil, zero	.02½	.02¾	.02½	.02¾	.02½	.02¾
32-36 Gas Oil (industrial)	.02½	.02⅝	.02½	.02⅝	.02⅝	.02⅞
36-38 Distillate	.03½		.03⅝	.03¾	.03⅝	.03¾
38-40 Straw Distillate	.03⅝	.03¾	.03¾	.04	.03¾	.04

LUBRICATING OIL AND WAX

	Apr. 30		Apr. 23		Apr. 16	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.06½
100 vis., 3 color, 20-25 cold test	.05¼	.05½	.05¼	.05½	.05¼	.05½
150 vis., 3 color, 20-25 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
150 vis., 4 color, 20-25 cold test	.07	.07¼	.07	.07¼	.07	.07¼
180 vis., 3 color, 23-28 cold test	.08¾	.09	.08¾	.09	.08¾	.09
180 vis., 4 color, 23-28 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
180 vis., 5 color, 23-28 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
200 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
200 vis., 4 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09	.09¼
200 vis., 5 color, 23-28 cold test	.08½	.08¾	.08½	.08¾	.08½	.08¾
240 vis., 3 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 4 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
240 vis., 5 color, 25-30 cold test	.10¾	.11	.10¾	.11	.10¾	.11
280 vis., 3 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
280 vis., 4 color, 25-30 cold test	.12¾	.13	.12¾	.13	.12¾	.13
280 vis., 5 color, 25-30 cold test	.11¾	.12	.11¾	.12	.11¾	.12
Cylinder Stocks:						
600, steam refined, light green	.11	.13	.09	.10	.09	.10
600, steam refined, dark green	.08	.10	.08	.09	.08	.09
190-200 vis., D color Bright Stock	.34	.37	.33	.35	.33	.35
150-160 vis., D color Bright Stock	.32	.34	.31	.33	.31	.33
150-160 vis., E color Bright Stock	.30	.32	.29	.31	.29	.31
Waxes:						
124-126 White Crude Scale Wax	.03¼	.03⅜	.03⅜	.03½	.03⅜	.03½
PENNSYLVANIA:						
34 Neutral	.07¾	.08	.07¾	.08	.07¾	.08
34 Sundebloom	.07¾	.08	.07¾	.08	.07¾	.08
36 Miners' Neutral	.07¾	.08	.07¾	.08	.07¾	.08
150, 3 color	.21½	.22	.22½	.23	.21½	.22
180, 3 color	.27	.27½	.26	.26½	.26	.26½
200, 3 color	.29½	.30	.28½	.29	.28½	.29
220, 3 color	.31	.31½	.31	.31½	.31	.31½
600, steam refined	.32½	.33	.29½	.30	.26½	.27
635, steam refined	.34½	.35	.33½	.34	.29½	.30
650, steam refined	.37½	.38	.34½	.35	.31	.32
600, Pennsylvania Flash	.39	.40	.35½	.36	.33	.34
630, Pennsylvania Flash	.43		.39½	.40	.38½	.39
600, E filtered	.31½	.32	.31½	.32	.28½	.29
600, D filtered	.35½	.36	.35½	.36	.31½	.32
Pennsylvania Bright Stock	.50		.50		.47	.48
*122-124 White Crude Scale Wax	.03¾		.03¾		.03¾	
*124-126 White Crude Scale Wax	.04		.04		.04	

*At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06½	.07
No. 3 color, 200 vis., pale oil	.09	.10	.09	.10	.09	.10
No. 3 color, 300 vis., pale oil	.10	.10½	.10	.10½	.10	.10½
No. 3½ color, 500 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 4 color, 750 vis., pale oil	.14	.14½	.14	.14½	.14	.14½
No. 5 to 6 color, 200 vis., red oil	.07½	.08	.07½	.08	.07½	.08
No. 5 to 6 color, 300 vis., red oil	.08½	.09	.08½	.09	.08½	.09
No. 5 to 6 color, 500 vis., red oil	.09½	.10½	.09½	.10½	.09½	.10½
No. 5 to 6 color, 750 vis., red oil	.12½	.13	.12½	.13	.12½	.13
No. 2½ color, 200 vis., pale filtered	.11	.12	.11	.12	.11	.12
No. 2½ color, 300 vis., pale filtered	.12	.13	.12	.13	.12	.13
No. 2½ color, 500 vis., pale filtered	.14½	.15	.14½	.15	.14½	.15
No. 2½-3 color, 750 vis., pale filtered	.17	.19	.17	.19	.17	.19
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11⅝	.11½	.11⅝	.11½	.11⅝
300 vis., 3-3½ color	.13	.13¼	.13	.13¼	.13	.13¼
350 vis., 3½-4 color	.13½	.13⅝	.13½	.13⅝	.13½	.13⅝
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15½
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Apr. 30		Apr. 23		Apr. 16	
Gasoline, U. S. Motor, 58-60 437	.09	.09¼	.09	.09¼	.09	
Kerosene, water white, 41-43	.08	.08½	.08	.08½	.08	
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05		1.05		1.05	
†Fuel Oil, Diesel, 28-30, per lb.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.05	.05½	.05	.05½	.05	.05½
25 pale Paraffin Oil	.10½		.10½		.10½	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.11½		.11½		.11½	
250 red Paraffin Oil	.11		.11		.11	
225 red Paraffin Oil	.09½		.09½		.09½	
200 red Paraffin Oil	.09		.09		.09	
Refined Wax:						
120-122 a.m.p., per lb.	.04¼		.04⅜		.04½	
125-127 a.m.p., per lb.	.04¾		.04¾		.04¾	
130-132 a.m.p., per lb.	.06		.06		.06	
133-135 a.m.p., per lb.	.06½		.06½		.06⅝	
135-137 a.m.p., per lb.	.06¾		.06¾		.06⅞	
Petrolatum in barrels, carload lots, per pound.						
Dark green	.02		.02		.02	
Amber	.03½		.03½		.03½	
Extra amber	.03¾		.03¾		.03¾	
Cream	.06½		.06½		.06½	
Lily white	.07½		.07½		.07½	
Snow white	.08½		.08½		.08½	

*Lighterage 5.0 cents a barrel extra. †Lighterage 6.5 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Apr. 30		Apr. 23		Apr. 16	
Kerosene, prime white	.08		.08		.08	
Kerosene, water white	.09		.09		.09	
600, steam refined cylinder stocks, in bbls.	.40	.41	.37		.33	
635, steam refined	.42	.44	.40		.36	
650, steam refined	.47	.48	.44		.40	
600, Pennsylvania flash	.50	.51	.47		.43	
630, Pennsylvania flash	.55	.56	.51		.48	
600, Warren E	.41	.42	.40½		.35½	
600, Oil City E	.40	.41	.40		.35	
Light 140-150 Bright Stocks	.60	.61	.59		.56	
Dark 140-150 Bright Stocks	.58	.59	.57		.54	.54½

LOS ANGELES EXPORT PRICES

	Apr. 30		Apr. 23		Apr. 16	
Kerosene, water white	.05½	.06	.05½	.06	.05½	.06
U. S. Motor Gasoline, 53-55, 437 e.p.	.07	.08	.07	.08	.07	.08

CRUDE OIL GRAVITY TABLE

Gravity—	Okla., Kans., N. C. Tex. 1	No. La. and Arkansas 2	Smackover, Ark. 3	Stephens, Ark. 4	Wheeler (Texas Panhandle) 5	Gray County (Texas Panhandle) 6	Carson and Hutchinson (Texas Panhandle) 7	Salt Creek, Wyo. 8	Grade B & Light Crude (G. Coast) 9	Somerset (South Central Texas) 10
24 and above	....	....	.90	....	....	....	....	....	....	....
Below 24	....	....	.75	....	....	....	....	....	....	....
Below 25	.60	....	....	....	....	....	....	....	1.05	....
25 to 25.9	.66	....	....	....	....	....	....	....	1.07	....
Below 26	....	....	....	....	....	....	....	....	....	....
26 to 26.9	.72	....	....	....	....	....	....	....	1.09	....
27 to 27.9	.78	....	....	....	....	....	....	....	1.11	....
Below 28	....	.78	....	.70	.70	.69	.72	....	....	....
28 to 28.9	.84	.84	....	.74	.70	.69	.72	....	1.13	....
29 to 29.9	.90	.90	....	.78	.70	.75	.72	.90	1.15	....
30 to 30.9	.96	.96	....	.82	.76	.81	.72	.96	1.17	....
31 to 31.9	1.02	1.02	....	.86	.82	.87	.72	1.02	1.19	....
32 to 32.9	1.08	1.08	....	.90	.88	.93	.78	1.08	1.21	1.05
33 to 33.9	1.11	1.13	....	....	.91	.96	.81	1.11	1.23	1.07
34 to 34.9	1.14	1.14	....	....	.94	.99	.84	1.14	1.25	1.09
35 to 35.9	1.17	1.17	....	....	.97	1.02	.87	1.17	1.27	1.11
36 to 36.9	1.20	1.20	....	....	1.00	1.05	.90	1.20	....	1.13
37 to 37.9	1.23	1.23	....	....	1.03	1.08	.93	1.23	....	1.15
38 to 38.9	1.26	1.26	....	....	1.06	1.11	.96	....	....	1.17
39 to 39.9	1.29	1.29	....	....	1.09	1.14	.99	....	....	....
40 to 40.9	1.32	1.32	....	....	1.12	1.17	1.02	....	....	....
41 to 41.9	1.35	1.35	....	....	1.15	1.20	1.05	....	....	....
42 to 42.9	1.38	1.38	....	....	1.18	1.23	1.08	....	....	....
43 to 43.9	1.41	1.41	....	....	1.21	1.26	1.11	....	....	....
44 and above	1.44	1.44	....	....	1.24	1.29	1.14	....	....	....

Column 1, Note—Magnolia Petroleum Co. posted schedule January 24, 1929, making price below 26 gravity 60 cents per barrel, 26-26.9 gravity 65 cents, 27-27.9 gravity 70 cents, 28-28.9 gravity 75 cents, 29-29.9 gravity 80 cents, 30-30.9 gravity 90 cents and 31-31.9 gravity $1, with balance of the price schedule as shown.

Oklahoma—Humble Oil & Refining and Carter Oil Co. January 24, Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., The Texas Company, January 25. Champlin Refining Co. on April 15 established prices for Garber, Tonkawa, Lovell, Billings, Watchorn and Thomas Fields which are 20 cents per barrel higher than posted schedules of other buyers; 15 cents of this 20-cent advance was made effective April 1.

North Central Texas—Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas, Iatan and Panola, Iatan posted a flat price of 93 cents by Magnolia on January 14, 1928), Currie, Nocona and Moran. Prairie, Sinclair and Gulf, The Texas Company, January 25, Humble Oil & Refining Co., January 24.

Kansas—Prairie, Sinclair and The Texas Company, January 25; Carter, January 24.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer and El Dorado only], Standard Oil Co. of Louisiana, Louisiana Oil Refining Corp., Gulf Refining Co., Magnolia Petroleum Co., schedule effective January 26 applies to Pine Island, Haynesville, Bull Bayou, Louisiana, and El Dorado, Ark., light crude. The Texas Company January 24 posted prices below 28 gravity at 6 cents differential per degree with minimum of 60 cents for all below 24 gravity.

Column 3—February 6, Louisiana Oil Refining Corp.; February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., and on February 10, Atlantic Oil Producing Co.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., January 28.

Column 5, 6 and 7—Humble Oil & Refining Co., Magnolia Petroleum Co., January 24, 1929.

Column 8—Midwest Refining Co., January 25, 1929. All crude over 37 gravity $1.23 per barrel.

Column 9—Humble Oil & Refining Co. and other major buyers January 26 (schedule ends 35 and above), with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. and The Texas Company posted 2 cents differential for each degree above 35 gravity and 1.37 for 40 gravity and above.

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective January 18, 1929)

Gravity—	Salt Lake, Potrero, Newport, Long Beach, Summerland, Lawndale, Los Angeles, Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Signal Hill, Seal Beach, Huntington Beach, Athens, Inglewood, Rosecrans-Dominguez, Watsonville 1	Whittier, La Habra, Coyote Hills 2	Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills 3	Montebello 4	Santa Fe Springs 5	Santa Marie, Coalinga 6	Wheeler Ridge, Fruitvale 7	Orcutt 8	Ventura, Rincon, Ventura Ave. 9	Elwood Terrace 10
14 to 14.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
15 to 15.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
16 to 16.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
17 to 17.9	.70	.70	.50	.70	....	.50	.50	.65	.70	....
18 to 18.9	.75	.75	.56	.70	....	.56	.56	.70	.75	....
19 to 19.9	.80	.80	.62	.75	....	.62	.62	.70	.80	....
20 to 20.9	.85	.84	.68	.80	....	.68	.68	.70	.85	....
21 to 21.9	.89	.88	.74	.85	.89	.74	.74	.86	.86	....
22 to 22.9	.93	.91	.80	.90	.92	.80	.80	.87	.87	....
23 to 23.9	.97	.94	.85	.96	.95	.85	.85	.90	.90	....
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.94	.94	....
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.98	.98	....
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	1.02	1.02	....
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06	....
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10	....
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14	....
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18	....
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.23	....
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28	....
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	1.34	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	1.40	1.16
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	1.46	1.22
36 to 36.9	1.59	....	....	....	1.50	....	....	....	1.52	1.28
37 to 37.9	1.65	....	....	....	1.55	....	....	....	1.58	1.34
38 to 38.9	1.71	....	....	....	1.60	....	....	....	1.64	1.40
39 to 39.9	1.77	....	....	....	1.65	....	....	....	1.70	1.46
40 to 40.9	1.83	....	....	....	....	....	....	....	1.76	1.52
41 to 41.9	1.89	....	....	....	....	....	....	....	1.82	1.58
42 to 42.9	1.95	....	....	....	....	....	....	....	1.88	1.64

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 11 to 13.9 gravity 45 cents, 14 gravity and above 50 cents, effective October 2, 1928, the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 45 cents, 14 gravity and above 50 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 graviy. Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9 posted by Union Oil Co. only.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (January 11)* ..... .80
Other fields ..... See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan* ..... Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler and Glasscock (July 26)‡ ..... $ .65
Chalk† ..... .65
Mitchell† ..... .65

*Includes Howard County and Westbrook Fields.
†Magnolia Petroleum Co., January 26, 1929.
‡Posted by Humble Oil & Refining Co., Magnolia Petroleum Co., and Gulf Pipe Line Co.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Below 36 gravity April 11) ..... $ .75
Bellevue 1.20
Urania (April 22) 1.00
East El Dorado (March 16, 1927) 1.00
Other fields ..... See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co., and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado-Pierce Junction and Spindletop.) do, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

Grade A (March 14)* $1.20
Grade B ..... See gravity table
Jennings, La. (March 14)† $1.05
Saratoga, Batson, Daytona (March 14, 1927)‡ 1.20
Markham (March 14)§ 1.00
High Island (December 14)¶ 1.00

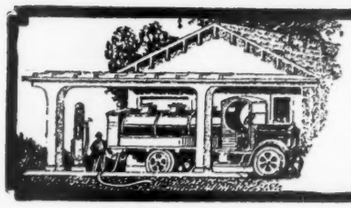
*Humble Oil & Refining Co., The Texas Company, Gulf Pipe Line Co., and Sun Pipe Line Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company.
¶Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective January 25, 1929)

Rock Creek, Wyo. $1.18
Salt Creek ..... See gravity table
Big Muddy $1.23
Grass Creek, heavy (July 27, 1928) ..... .90
Grass Creek, light 1.36
Mule Creek (May 1, 1928) 1.10
Elk Basin 1.36
Lance Creek 1.38
Poison Spider (March 14, 1927) 1.00
Notches (March 14, 1927) ..... .65
Rex Lake (February 22) 1.10
Osage 1.38
Lost Soldier (contract) 1.00
Hamilton Dome (March 14, 1927) ..... .85
Greybull 1.57
Cat Creek (Montana) (July 27, 1928) .. 1.48
Sunburst (Montana) (May 18, 1928) .. 1.55
Torchlight 1.38

(Continued on Page 142)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns April 30.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago dist.†..	14.0	15.0	...	13.0
Decatur, Ill. ...	14.2	15.2	...	13.1
E. St. Louis....	13.4	14.4	...	12.2
Joliet	14.4	15.4	...	13.3
Peoria	14.2	14.0	...	13.1
Quincy	14.2	15.2	...	12.9
Davenport, Ia...	17.5	18.5	3.0	13.3
Des Moines.....	17.5	18.5	3.0	13.3
Keokuk	17.5	18.5	3.0	13.3
Sioux City	17.1	18.1	3.0	12.9
Duluth, Minn...	18.5	19.5	3.0	13.9
Mankato	18.1	19.1	3.0	13.7
Minneapolis ...	18.2	19.2	3.0	13.9
La Crosse, Wis..	17.2	18.2	2.0	14.0
Milwaukee	16.1	17.1	2.0	12.9
Madison	16.3	17.3	2.0	13.1
Detroit, Mich...	17.8	18.8	3.0	14.7
Grand Rapids..	17.7	18.7	3.0	14.6
Saginaw	17.9	18.9	3.0	14.8
Evansville, Ind..	18.0	19.0	4.0	14.0
Fort Wayne....	18.4	19.4	4.0	14.4
Indianapolis ...	18.2	19.2	4.0	14.2
South Bend ...	18.4	19.4	4.0	14.4
Fargo, N. D....	18.9	19.9	2.0	15.9
Huron, S. D.....	19.3	20.3	4.0	14.7
Sioux Falls	18.1	19.1	4.0	14.4
K. C., Mo.*	16.9	17.9	3.0	11.6
Springfield* ...	16.8	17.8	3.0	12.5
St. Louis*	15.9	16.9	2.5	12.3
St. Joseph	16.5	17.5	3.0	12.2
Wichita, Kans.	15.8	16.8	3.0	11.8
Bartlesville, Ok.	15.5	16.5	3.0	11.5

*State tax 2 cents; remainder city tax.
†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	11.9
V. M & P. naphtha	16.2	12.9
Cleaner's naphtha	16.0	13.9
Stanisol	17.0	14.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting. Cleaner's naphtha price of 16 cents and Stanisol 17 cents effective March 24.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.
The following quantity discounts from the service station price are allowed on monthly sales of gasoline: 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City...	16.0	20.0	2.0	13.0
Newark, N. J...	16.0	20.0	2.0	13.0
Annapolis, Md..	18.0	22.0	4.0	13.0
Baltimore	18.0	22.0	4.0	12.0
Cumberland ...	18.0	22.0	4.0	13.0
Washington ...	16.0	20.0	2.0	12.0
Danville, Va....	19.0	23.0	5.0	13.0
Norfolk	19.0	23.0	5.0	13.0
Petersburg	19.0	23.0	5.0	13.0
Roanoke	19.0	23.0	5.0	13.0
Richmond	19.0	23.0	5.0	13.0
Charles'n, W.Va.	18.0	22.0	4.0	13.0
Keyser	18.0	22.0	4.0	13.0
Parkersburg ...	18.0	22.0	4.0	13.0
Wheeling	18.0	22.0	4.0	13.0
Charlotte, N. C.	19.0	23 0	5.0	13 0
Hickory	19.0	23 0	5.0	13 0
Mt. Airy	19 0	23.0	5 0	13.0
Salisbury	18.0	20 0	5 0	13 0
Charls'ton, S.C..	20.0	24.0	6.0	13.0
Columbia	20.0	24.0	6.0	13.0

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points* ..	17.0	18.0	3.0	†14.0

*Dealers and commercial accounts 2 cents under tank wagon.
†Service station price 16 cents.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa..	16 0	*21 0	...	14.0
Philadelphia ..	16.0	*21 0	...	14 0
Scranton	16 0	*21.0	...	14.0
Allentown	16 0	*21.0	...	14.0
Altoona	16 0	*21.0	...	14 0
Erie	13 0	*21.0	...	14 0
Dover, Del. ...	19.0	21.0	3.0	14.0
Wilmington ...	19.0	21 0	3.0	14 0
Springf'd, Mass.	18.0	20.0	2.0	15.0
Worcester	18.0	20.0	2.0	15.0
Boston	18.0	20.0	2.0	15.0
Providence, R.I.	15.0	16.0	2.0	15.0
Hartford, Conn.	18.0	20.0	2.0	14.0
New Haven ..	17.0	18.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the state. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y...	16.0	18.0	...	15.0
New York*	16.0	18.0	...	15.0
Buffalo	16.0	18.0	...	14.0
Rochester	16.0	18.0	...	14.0
Syracuse	16.0	18.0	...	15.0
Boston, Mass. ..	18.0	20.0	2.0	15.0
Augusta, Me. ..	20.0	22.0	4.0	15.0
Manch't'r, N.H.	20.0	22.0	4.0	15.0
Burlington, Vt..	19.0	20.0	4.0	15.0

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga. ..	21.0	21.0	4.0	16.5
Augusta	21.0	23.0	4.0	15.5
Macon	21.0	22.0	4.0	16.5
Savannah	20.0	22.0	4.0	15.5
Birm'ham, Ala..	18.0	20.0	4.0	13.0
Mobile	21.0	23.0	4.0	15.0
Montgomery ..	22.0	24.0	4.0	16.5
Clarks'le, Miss..	21.0	23.0	5.0	12.5
Jackson	20.0	22.0	5.0	13.0
Natchez	20.5	22.5	5.0	14.0
Gulfport	22.5	24.5	5.0	14.0
Vicksburg	20.5	22.5	5.0	14.0
Jack'ville, Fla..	22.0	24.0	5.0	14.5
Miami	23.0	25.0	5.0	15.5
Pensacola	23.0	25.0	5.0	14.5
Tampa	22.0	24.0	5.0	14.5
Lexington, Ky..	20.0	22.0	5.0	15.5
Covington	20.0	21.0	5.0	15.5
Louisville	20.0	22.0	5.0	15.0
Ashland	19 0	20.0	5.0	15.5
Catlettsburg ..	19.0	20.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)*

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco .	19.0	23.0	3.0	15.5
Los Angeles ..	18.5	22.5	3.0	15.5
Reno, Nev.	24.0	26.0	4.0	19.0
Portland, Ore...	19.5	23.5	3.0	16.5
Seattle, Wash..	18.5	22.5	2.0	16.5
Tacoma	18.5	22.5	2.0	16.5
Spokane	22.5	26.5	2.0	20.5
Phoenix, Ariz..	18.0	22.0	4.0	20.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	18.25	20.25	4.0	13.25
McCook	19.75	21.75	4.0	14.75
Norfolk	18.75	20.75	4.0	13.75
N. Platte	19.75	21.75	4.0	14.5
Scottsbluff ...	19.75	21.75	4.0	14.25

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	15.5	19.5	5.0	16.0
Baton Rouge...	14.0	18.0	4.0	14.5
Alexandria	15.0	19.0	4.0	16.0
Lafayette†	16.0	20.0	5.0	14.0
Lake Charles†.	16.5	20.5	5.0	16.0
Shreveport	15.0	19.0	4.0	15.0
Knoxv'le, Tenn.	20.0	24.0	5.0	16.0
Memphis	16.0	20.0	5.0	12.5
Chattanooga ...	19.5	23.5	5.0	16.0
Nashville	17.0	21.0	5.0	16.0
Bristol	20.0	23.0	5.0	14.0
Lit. Rock, Ark..	17.0	21.0	5.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax. †Five-cent tax includes 1-cent tax in Lafayette Parish.
†Includes 1-cent parish tax.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex. ...	13.0	17.0	2.0	13.0
Fort Worth ...	13.0	16.0	2.0	13.0
Houston	14.0	18.0	2.0	13.0
San Antonio ..	13.0	17.0	2.0	12.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	16.0	20.0	2.0	13.0
Muskogee, Ok.*	15.0	18.0	3.0	13.0
Okla. City* ...	13.0	17.0	3.0	12.0
Tulsa*	15.0	18.0	3.0	11.0
Ft. Smith, Ark.	15.0	19.0	5.0	12.0
Little Rock ...	17.0	21.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo...	18.0	21.0	3.0	15.5
Pueblo	18.0	21.0	3.0	15.5
Grand Junction.	21.5	24.5	3.0	19.0
Casper, Wyo. .	19.0	22.0	4.0	14.0
Cheyenne	20.0	23.0	4.0	15.5
Butte, Mont. ..	24.5	27.5	5.0	20.0
Helena	24.5	27.5	5.0	20.0
Salt Lake, Utah	21.0	24.0	3.5	17.0
Albu'que, N. M.	21.0	24.0	5.0	17.0
Boise, Idaho....	23.5	26.5	4.0	19.0
Twin Falls	23.5	26.5	4.0	19.0

TANK WAGON CHANGES

April 19—Standard Oil Co. of Louisiana reduced gasoline tank wagon prices 2 cents at Nashville, Tenn.

April 23—Standard Oil Co. of Louisiana reduced gasoline tank wagon and service station prices 2 cents at Memphis, Tenn.

May 1—Standard Oil Co. of Indiana advanced gasoline tank wagon and service station prices 1 cent in Minnesota due to increase in State tax from 2 to 3 cents.

CRUDE OIL PRICE CHANGES

April 15—Champlin Refining Co. advanced Garber, Tonkawa, Lovell, Billings, Watchorn and Thomas, Okla., crudes 5 cents. Same company on April 1 advanced these crudes 15 cents so that the prices in effect on April 15 were 20 cents per barrel higher than prices posted by other major buyers.

April 26—Ohio Oil Co. advanced Lima, Indiana, Illinois, Princeton and western Kentucky crudes 15 cents and Wooster crude 13 cents. Imperial Oil, Ltd., advanced Petrolia and Oil Springs, Canada, crudes 15 cents.

April 27—The Joseph Seep Purchasing Agency advanced Cabell and Somerset crudes 15 cents.

FRANK A. LOVELAND, SR., DIES

Frank A. Loveland, Sr., died April 25, in his home at McDonald, Pa., after a nine-months' illness. Mr. Loveland was born May 3, 1855, in Brockport, N. Y. In 1892 he went to McDonald from Bradford, Pa. At that time Mr. Loveland was employed in the oil field, having been employed in the oil fields at Petroleum Center and Bradford. His more recent employment was with the Continental Supply Co. of Pittsburgh, where he held a responsible position from which he retired to enjoy a well-earned leisure.

NEW LEASE IN MEXICO

Empire Gas & Fuel Co., is reported, has leased a large part of the 2,000,000-acre San Joes de las Rusias ranch, 75 miles south of Matamoros, about midway between that town and Tampico, and has let a contract for drilling five wells upon a structure that runs through the ranch for 50 miles.

Several years ago attention was attracted to this general area because of the existence there of several asphalt springs and oil seeps. Corona Oil, subsidiary of Royal Dutch-Shell, drilled six dry holes. Location of the Empire Gas tests is more than 50 miles distant from the old Corona operations.

CRUDE OIL PRICES

(Continued from Page 141)

Hogback (New Mexico) (July 27, 1928) 1.43

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (January 11)*	$ .80
Mirando (January 7)†	.80
Salt Flat (April 8, 1929)‡	1.00
Rockdale-Minerva (April 15):	
Below 28 gravity	1.25
28-38.9 gravity	1.27
39-39.9 gravity	1.29
40 and above	1.31
Thrall‡	...
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.
§Humble Oil & Refining Co.

EASTERN STATES

(Effective January 4, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (April 27) ..	1.60
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (January 25, 1929)	1.65
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (January 25, 1929)	1.75
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (March 12, 1929)..	1.65
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective April 26, 1929)

Lima	$1.65
Wooster	1.75
Illinois	1.60
Indiana	1.42
Princeton	1.60
Plymouth	1.18
Waterloo (November 17, 1926)	1.35
Western Kentucky	1.68
Dundee, Mich. (April 15, 1929)**	.70
Midland, Mich. (April 15, 1929)*	1.50
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 16)‡	1.50
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (Mar. 16, 1929)§	1.50
Oil Springs (Canada)¶ (April 26)	2.12
Petrolia (Canada)¶ (April 26)	2.05

*Posted by Pure Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.
**Posted by Standard of Indiana.

MEXICAN CRUDE

Panuco heavy (f.o.b. Mexican ports) ..$1.15

Note—Due to the fact that the exportation of Tuxpan light crude has become a negligible factor, prices will no longer be published.

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Oil Share Market Shows Stronger Tone

Drop in Crude Production Invigorates Trading Which for Several Days Had Been Unsteady. Simms Transaction Marks Record

Unsteadiness which marked trading in the oil shares gave way this week to a stronger tone. Although displaying excellent resistance, the oils, in sympathy with the rest of the market, showed recessions as a result of the high call rate for money. The increase in Pure Oil's dividend rate to $1.50 resulted in active buying of that stock. Atlantic Refining, Cities Service and Skelly were among the oils that received strong support. The falling off in the total production of crude, announced Tuesday, as a result of conservation measures, imparted a firmer character to the trading in oil issues. A feature of the week was the purchase of a block of 100,000 shares of Simms at 30 by a group headed by M. J. Meehan, said to be the largest single transaction in the annals of the New York Stock Exchange.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

January 26	57.44
February 2	57.55
February 9	55.28
February 16	55.35
February 23	54.92
March 2	56.43
March 9	55.96
March 16	58.63
March 23	58.52
March 30	58.57
April 6	58.26
April 13	58.52
April 20	58.46
April 27	58.34

Skelly Oil

Net income of Skelly Oil Co. for the first quarter of 1929, after all charges, including interest, depletion, depreciation and provision for Federal income tax, totaled $1,170,208.74, equal to $1.07 per share on the outstanding shares, or more than twice the quarterly dividend of 50 cents per share. Gross earnings for the three months totaled $6,220,383.47.

Net income for the first quarter of the current year compares with $69,085.30, or 6 cents per share for the first quarter of 1928.

New York Standard and Vacuum

Official announcement of a merger involving Standard Oil Co. of New York and the Vacuum Oil Co. is looked for shortly, according to reports current in financial circles. This deal, if and when consummated, will be the first merger of Standard Oil companies since the dissolution in 1911.

Officials of the two companies decline to comment on the merger report, although conceding that negotiations had been under way. The consolidation, it is expected, will be effected through the exchange of three shares of Standard Oil of New York for each share of Vacuum outstanding stock.

Should the consolidation go through, Standard Oil Co. of New York will be close to a $1,000,000,000 corporation. Total assets of the two companies aggregate close to that figure, as contrasted with the total assets of approximately $1,500,000,000 shown by Standard Oil Co. of New Jersey.

French subsidiaries of Sinclair Consolidated Oil Corp., recently acquired by Vacuum, and possibly the Texas Pacific Coal & Oil Co. will be brought into the transaction in the event that the merger becomes effective, it is reported. Vacuum and Texas Pacific officials, it is understood, have recently been conferring.

Barnsdall Oil

Barnsdall Corp. and subsidiaries for quarter ended March 31, 1929, reports net profit of $1,888,372 after interest, Federal taxes, depreciation, depletion and intangible development costs, equal to 83 cents a share (par $25) earned on 2,258,113 combined Class A and Class B shares. This compares with $389,131, or 31 cents a share on 1,249,673 combined shares of stock outstanding in first quarter of 1928.

Prairie Pipe Line

Prairie Pipe Line Co. and subsidiary report for quarter ended March 31, 1929, net profit of $5,400,000 after taxes and charges, equivalent to $1.33 a share (par $25) earned on 4,050,000 shares of stock.

Illinois Pipe Line

Illinois Pipe Line Co. declared the regular semiannual dividend of $10, payable June 15 to stock of record May 13.

Standard Oil of Ohio

Standard Oil Co. of Ohio declared the quarterly dividend of $1.75 on the preferred, payable June 1 to stock of record May 10.

Mexico-Ohio Oil

Mexico-Ohio Oil Co. has offered stockholders of record April 20, additional stock at $5, one share for every four held. Rights expire May 4.

French Standard Oil

Compagnie Standard Franco-Americaine, subsidiary of Standard Oil Co. of New Jersey, declared dividend for 1928 of 6 per cent, first paid by the company. Net profits were 6,125,000 francs, compared with 4,188,000 francs in 1927.

National Refining

National Refining Co. declared regular quarterly dividend of 37½ cents on common stock, payable May 15 to stock of record May 1. In previous quarter an extra 50 cents also was declared.

Pierce Petroleum

Pierce Petroleum Corp. and subsidiaries report for quarter ended March 31, 1929, profit of $31,122 after interest, depreciation, depletion, etc., comparing with net loss of $34,265 in first quarter of 1928. No mention is made of Federal taxes. Stock outstanding consists of 11,500 no-par shares of $6 preferred and 2,500,000 no-par shares of common.

Transcontinental Oil

Transcontinental Oil Co. reports for quarter ended March 31, 1929, profit of $527,551 after interest, depreciation, dry holes, leases and properties abandoned charged off or provided for by reserve, but before Federal taxes, comparing with net loss of $70,646 in first quarter of 1928. Stock outstanding consists of 157,500 shares of 7 per cent preferred and 3,757,829 no-par shares of common.

Atlantic Refining

Atlantic Refining Co. has announced the adoption of a plan whereby employes of the company will be enabled to become stockholders through the issue of 133,333 shares of the authorized but unissued common stock. The plan is to be in effect not to exceed five years, beginning

OIL BONDS ON THE NEW YORK STOCK EXCHANGE
Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange, Kennedy Bldg., Tulsa, Okla.

Amount outstanding	Company—	Date	Pct.	Int.	For week ended Apr. 26— Sales	High	Low	Close
.....	Atlantic Refining Co.	July	1937	5	J&J	35,000	101	100	100⅝
18,864,500	Barnsdall Oil with war.	Dec.	1940	6	J&D	No sales.			
6,000,000	Barnsdall Oil without war. .	Dec.	1940	6	J&D	No sales.			
11,400,000	California Pet. conv. deb. ..	Nov.	1938	5½	M&N	17,000	101	100	100⅞
7,400,000	California Pet. conv. deb. ..	Feb.	1939	5	F&A	27,000	101½	99⅝	99¾
.....	General Petroleum	Aug.	1940	5	F&A	6,000	101	100⅛	100¾
25,000,000	Humble O. & R. deb.	July	1932	5½	J&J	6,000	101¼	101	101
24,239,000	Humble O. & R. deb.	Apr.	1937	5	A&O	7,000	100⅛	100¼	100¼
10,103,000	Mid-Cont. Pet. Corp.	Mar.	1940	6½	M&S	No sales.			
3,745,000	Pan-American Pet. & T.	Aug.	1930	7	F&A	7,000	105	104½	104⅛
10,161,900	Pan-American Pet. & T.	Nov.	1934	6	M&N	124,000	109⅝	107	107
40,000,000	Phillips Pet.	June	1939	5¼	J&D	35,000	92¼	91	91⅜
.....	Pierce Oil deb.	June	1931	8	J&D	No sales.			
.....	P. & R. Corp. without war. ..	June	1931	8	J&D	No sales.			
.....	Producers & Refiners Corp. .	June	1931	8	J&D	No sales.			
20,000,000	Pure Oil	Aug.	1937	5½	F&A	3,000	98½	98	98⅛
30,000,000	Shell Pipe Line Co.	Nov.	1952	5	M&N	25,000	95⅞	95½	95¾
50,000,000	Shell Union Oil Co.	May	1947	5	M&N	24,000	98	97¼	97¼
3,431,500	Simms Pet. Co.	Nov.	1929	6	M&N	23,000	99	99	99
44,816,500	Sinclair Co. Oil Co. A	Mar.	1937	7	M&S	12,000	102⅞	102	102⅝
23,086,500	Sinclair Co. Oil Co. B	Mar.	1938	6½	J&D	16,000	101½	100¼	101½
20,000,000	Sinclair Co. Oil Co. D	Sept.	1930	6	M&S	37,000	99¼	99	99¼
.....	Sinclair Cr. Oil Pur. Co. A ..	Jan.	1938	5½	J&J	No sales.			
.....	Sinclair Pipe Line Co.	Oct.	1942	5	A&O	8,000	94¼	93⅝	94
15,000,000	Skelly Oil Co.	Mar.	1939	5½	M&S	27,000	95	94	94½
.....	Standard Oil of N. J.	Dec.	1946	5	F&A	17,000	102½	102	102⅛
.....	Standard Oil of N. Y.	Dec.	1951	4½	J&D	12,000	96⅝	96¼	96⅝
.....	Superior Oil Co.	Feb.	1929	7	F&A	No sales.			
.....	Union Oil of Calif.	Jan.	1931	5	J&J	No sales.			
8,934,500	Union Oil of Cal. 20 yr. A ..	May	1942	6	F&A	4,000	107	106¾	107
9,419,000	Union Oil of Cal. series C ..	Feb.	1935	5	A&O	13,000	98	97⅜	97⅜
4,870,000	White Eagle Oil & Ref.	Mar.	1937	5½	M&S	4,000	102	101⅞	101⅞

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par value	Stocks	For week ended April 26— Sales	Open	High	Low	Last	
$6.75	.45	2⅞	.55	1½	.53	$5	Amer. Con. Oilfields	2,600	50	59	50	51	— 8
..	..	7½	2¾	9½	3⅛	N.P.	Amer. Maracaibo	7,600	5	5	4¾	5	+ ⅛
..	..	2¾	1	4½	2¼	$10	Argo Oil	11,500	3¾	4	3¾	4	+ ¼
85¼	60	40	20½	55	32¾	N.P.	British American	No sales.					
28⅜	9¼	28¼	15½	4½	3⅞	25c	Carib. Syndicate (new)	2,600	3⅛	3¼	2⅞	3⅛	+ ¼
..	..	58¾	40¼	90⅞	54	$20	Cities Service	88,600	112	114¾	111½	112⅞	— 2⅛
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	1,800	97¼	97⅝	87¼	87⅜	—10
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	300	9¼	9¼	9	9	— ¼
3½	1¾	3⅞	1⅛	3¼	76	1	Colombia Syndicate	1,700	1⅛	1¼	1⅛	1⅛	.....
..	..	9¾	6⅝	8⅞	6¼	10	Consolidated Royal	300	8	8	7⅞	8	— ¾
16	10	14⅞	9½	17½	9½	N.P.	Creole Syndicate	12,000	9¼	9¼	8⅞	9	.....
..	..	3	.50	3¼	.76	N.P.	Crown Central	4,300	2⅛	2⅜	1⅞	1⅞	— ½
7⅞	6¾	12	4	33½	3¼	N.P.	Darby Petroleum	300	17	17	17	17	— 1
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	2,100	3⅞	4	3⅞	4	— ½
..	..	16¾	4	21⅛	7½	N.P.	Derby Oil & Refining, pfd.	200	27	27	27	27	.....
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.					
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	5,300	160⅛	160¼	157½	158	.....
$3.00	.83	2½	.80	3⅜	1	5	Intercontinental Pet.	45,400	2	2⅜	1⅛	2½	+ ⅝
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	1,200	3	3	2	2	.....
12¼	5⅜	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	1,300	5⅛	5½	5	5	— ⅛
27	20	27½	20	43⅞	20	N.P.	Lion Oil & Refining Co.	5,800	35⅞	36⅞	34	36⅛	+ ⅝
46	30	59⅜	37	69⅛	48⅛	$25	Lone Star Gas	300	69½	69⅞	69½	69⅞	+ ⅝
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	2,500	65	65	60	60	.....
34	12½	52	12	48½	32	N.P.	Margay Oil	No sales.					
8	5½	12⅛	5	8	2⅝	N.P.	Mexico-Ohio Oil	1,800	4½	5	4½	5	+ ½
1¾	1⅛	1½	1	1¾	.76	$1	Mountain & Gulf	2,200	1¼	2¼	1⅛	1⅛	— ⅛
26	23	29¼	22¾	28⅞	19½	10	Mountain Producers	1,800	18⅝	19½	18⅝	19⅛	— ⅛
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	2,900	4½	4½	4⅛	4⅛	— ½
..	..	16	9¼	11⅞	7⅛	1	New Mex. & Ariz.	800	7½	7¾	7⅛	7¼	— ¼
..	..	12¾	9½	14¼	8½	N.P.	North Central Texas	3,000	11⅛	11⅜	11	11	+ ⅛
10⅛	5⅞	9⅜	3¼	6	2⅛	N.P.	Pandem	3,700	2⅜	2⅜	2¼	2⅜	— ⅛
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	4,300	8	8	7½	8	.....
22¾	12	13½	5⅛	7¾	4⅞	N.P.	Pennok Oil	100	7½	7½	7½	7½	+ ½
17	8½	24⅜	7	18	4⅞	25	Red Bank Oil	1,500	13⅛	14	13⅛	14	+ ⅛
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	3,700	5⅛	5¼	5	5⅛	.....
7	4½	7	4½	12	4⅛	N.P.	Ryan Consolidated	900	7⅜	7⅜	7	7	— ⅛
10	7⅛	8	5¼	7¼	5½	$10	Salt Creek Cons.	100	3⅞	3⅞	3⅞	3⅞	— ⅛
35	24⅛	35½	27¼	35	23⅛	10	Salt Creek Prod.	3,300	21¾	22½	21	21½	— 1
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	No sales.					
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	200	15	15⅝	15	15⅛	— ⅞
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	2,100	14¼	15⅞	14⅛	14⅛	— 1⅝
92	63½	92	63½	93¾	75	100	Transcontinental, pfd.	100	84	84	84	84	— 1
8	4½	7⅜	4¼	9½	4¾	5	Venezuelan Petrol	4,100	4⅞	5	4⅞	5	.....
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	1,900	6	6⅛	5¾	6	.....
6½	6	6	1¾	8⅝	2⅛	25	Y Oil & Gas (new)	800	2¾	2¾	2⅛	2⅛	— ⅝

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended April 27: Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27⅛ (sh)	922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	16,200	33¾	35	32⅜	33	— 1
74	39⅞	82⅛	35⅛	85	51¼ (sh)	209,180	N.P.	American Republics Corp.	.....	.....	3,600	56½	58	54	54⅝	— 3¾
60	44¾	50¼	35	53⅝	37½	$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	†13,000	45¼	45¾	45	45	— 1
128⅜	97	131⅜	104	66⅜	50	50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	284,600	62	65½	60⅜	64½	— 4
33½	23½	35½	20¾	53	20	35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	58,600	44	45½	43⅛	43½	— 1
94¼	50	96¾	65	94⅞	68	20,785,400	100	General Asphalt	.....	.....	9,100	75	76	73	74	— 2
72	50¼	175¾	60⅛	167	79	25,000,000	100	Houston Oil	.....	.....	21,900	99	102⅝	95½	98	— 4½
34	19⅝	32¾	17⅝	38⅜	21¾ (sh)	959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	47,200	37⅜	38½	35⅝	36⅜	— 1⅞
12¾	7½	12⅛	7⅝	39⅝	9	8,203,080	$10	Indian Refining	.....	May 31, 24	136,200	50¾	51⅜	46⅞	49¾	+ 2⅛
25⅞	16½	37¾	20½	39⅛	27⅜ (sh)	3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	1,800	30½	31½	29	29	— 2½
19⅞	12	18⅛	10	19¾	9⅜ (sh)	1,237,078	N.P.	Louisiana Oil Refining	.....	.....	19,300	14⅜	15	13¾	13⅞	— 1¼
28	16½	22⅜	12	25½	12½ (sh)	330,000	N.P.	Maracaibo Oil	.....	.....	14,900	18⅜	18⅜	16⅞	17	.....
63⅜	49¼	58½	31	49¾	33 (sh)	2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	44,600	40¾	42	39½	40⅜	— 1⅜
13¾	6	9¼	3	73	4⅝ (sh)	945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	196,300	54⅞	60	49¼	57½	+ 8⅛
37	20½	39⅜	25½	44½	25⅛ (sh)	1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	39,600	35½	36⅞	34⅝	34¾	— 2
104¼	90	105	97	120½	103¼	$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	No sales.					
2½	½	3¾	1⅝	7⅜	2⅜	24,298,850	10	Middle States	.....	July 1, 23	6,500	4¼	4½	4⅛	4⅛	— ⅛
76½	56⅛	65⅞	40⅛	54⅞	38¼	$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	33,000	58	62⅝	58	59⅞	— 2⅝
78⅜	56⅞	66⅜	40¼	58⅞	37¾	121,097,900	50	Pan American P. & T. B.	.....	Nov. 15, 24	192,500	60	65½	58½	61	— 3¼
46	30	37⅞	16¾	28⅜	15½ (sh)	400,000	N.P.	Pan American Western B	.....	Jan. 30, 27	600	15	15¼	14	14	— 1
32	4½	18⅞	8	21¾	11½ (sh)	198,770	N.P.	Panhandle P. & R.	.....	.....	500	12⅞	12⅞	12	12¼	— ⅜
99⅜	51	83	54	108	70	$2,935,200	$100	Panhandle P. & R. pfd.	.....	July 2, 23	No sales.					
57⅜	40	60¼	36¼	53⅞	35¼ (sh)	2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	52,600	43	43¾	41½	42¾	— 1⅝
....	....	1⅛	½	5¼	½	$29,622,925	$25	Pierce Oil Corp.	.....	.....	6,500	2¾	2⅞	2½	2⅞	+ ¼
7	2¾	5½	2½	7	3½ (sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	24,300	5½	5¾	5	5¼	+ ¼
60¼	48	55½	45⅝	68	46	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	7,800	61	61¾	59⅞	60¾	— ¼
137½	122½	190	130¾	280	172	$101,250,000	$25	Prairie Pipe	75cQ*	Mar. 31, 29	46,200	56⅞	60	56½	60	— 1
20¾	11	33⅞	16¾	29⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	4,700	21⅝	23	21⅛	21⅛	— ⅞
41⅝	30¾	50	36⅞	49⅝	41	2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	4,000	42	43	42	42	— 1¾
31	25¼	33½	25	31⅝	19	75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	52,200	27⅞	28½	26	27	— ¾
27½	22	28⅝	25⅜	56	23	47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	72,100	45⅛	47	44¼	45¼	— ¼
57⅜	47⅜	54½	44¼	64	44⅝ (sh)	611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	4,300	52¼	52⅝	51⅞	52	— ⅜
48⅝	40½	47⅞	41⅜	57½	40⅝ (sh)	£30,000,000	£1	Shell Transport & T.	$1.455	July 23, 28	No sales.					
31	24	31¾	24⅝	39¼	23¼ (sh)	20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	47,000	29¾	30⅞	28¾	29¾	— 1⅜
28⅝	15⅛	26⅜	14¼	27¼	18⅛	$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	1,070,300	32½	34¼	25⅝	30½	+ 4¾
24⅞	16¾	22⅝	15	46¾	17⅜ (sh)	4,501,915	N.P.	Sinclair Consolidated	.....	.....	115,800	38⅞	40¼	38	38½	— 1¼
99½	90	104½	97	110	102½	$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	600	109¾	110⅜	109½	110⅜	+ 1¼
37⅛	26⅝	37⅜	24⅛	42⅝	25	27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	96,500	44½	46¼	43¼	44½	— ½
63⅝	51½	60¾	50⅜	80	53 (sh)	12,594,098	N.P.	Standard Oil of California	65½cQ	Dec. 15, 28	58,200	78	79⅜	76½	77⅜	— 1⅝
46⅜	37½	41⅜	35⅛	59⅜	37¾	$611,120,700	$25	Standard Oil of New Jersey	25cQ*	Dec. 15, 28	186,200	58⅛	60⅛	57½	58½	— 1½
47¼	30⅜	34⅛	29¾	44¼	28¾	427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	98,100	43½	44⅜	42½	43¼	— ⅜
41⅝	30⅛	34⅞	30	77	31½ (sh)	1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	800	104¼	63½	60¼	60⅜	— 2¾
5¼	1	6½	3⅛	14¼	2½ (sh)	1,267,000	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	48,300	8⅞	9½	8½	8⅞	— ⅝
58	48	58	45	74¾	50	$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	700	66¾	68⅜	64⅜	65	— 2¾
19½	12	18⅞	12	26⅝	12⅛	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	2,100	159	161¼	157½	161¼	+ 1¾
39¼	27	29⅛	19	41½	19⅝ (sh)	2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	1,600	33⅝	34⅝	33½	33¾	— 1¾
103	87¼	90⅛	85	100⅛	86	$20,705,200	$100	Tide Water Oil Co. 5% pfd.	$1.25Q	Nov. 15, 28	300	93½	88¼	87⅞	87⅞	— 1⅛
27	20⅞	19⅛	15¾	25	14⅜ (sh)	4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	20,100	20¼	20¾	19½	19⅞	— ⅞
5½	3	10⅜	3¾	14¾	7¼ (sh)	3,742,029	N.P.	Transcontinental Oil	.....	.....	45,900	11	11¼	10¾	11	.....
58⅜	37¼	56½	39⅝	58	42¾	$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	11,300	51⅞	52⅞	50¼	51	— 1½
120⅜	84¼	127½	94	128⅛	110	31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28	1,700	142	147	152	145¾	+ 4¾
30⅛	23½	34½	24½	44⅞	26 (sh)	356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	32,700	34⅝	36½	33½	33⅛	+ ½
29¾	25⅛	27½	20	38	20⅛ (sh)	490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	5,300	36¾	36¾	35½	36	— ½
								Wilcox Oil & Gas	.....	.....	1,520	27½	29	23½	27¾	+ 4¾

*Also extras. †Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	14⅞	£4,126,460	£1	Anglo-American Oil	.....	June 6, 28	3,200	15¼	16¼	15	15⅝	— ⅜
....	....	3¾	¾	5	1¼ (sh)	500,000	N.P.	Atlantic Lobos	.....	.....	400	2	2¼	2	2¼	— 1½
76	65	69	50	56½	44½	1,000,000	25	Borne Scrymser	$18.A.	Oct. 15, 28	105	40	40	38	38	— 1
59½	42	60	45	76	53	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	1,300	69½	71¾	69½	69½	— 1
82½	65	126	76½	161	117½	3,000,000	25	Chesebrough Mfg.	$1Q	Dec. 28, 28	300	168	170	168	168	+ 3
25⅞	17½	22⅝	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	31,800	23	24¼	22⅜	23	+ 1
137	102	137	89	114	67	1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	50	65	65	64¾	65	.....
63¾	43	68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	No sales.					
32½	9⅞	13½	3½	13	4¼	16,000,000	100	Galena Signal Oil	.....	June 30, 25	No sales.					
68½	52	68½	54	114¾	59¼	73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	22,900	114¼	118⅞	113	113⅜	— 2¾
144½	125½	182	123¾	290½	176½	20,000,000	100	Illinois Pipe Line	10%S.A.	Dec. 15, 28	350	320	325	315	325	— 5¼
....	....	64¾	37¾	104	56¾ (sh)	6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	1,600	115⅝	117	115	115	— 1
72½	58	94½	61	91⅞	74⅜	$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	400	91	92½	91	92⅛	— ⅛
35½	28¾	39	28¼	55	35 (sh)	7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	6,100	53⅞	56¼	53⅛	53⅛	.....
20¾	12½	24	13½	32⅜	19⅜	$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	4,000	24⅞	25	23½	24	.....
51½	27¼	44½	31¼	75	38½	5,000,000	100	New York Transit	.....	July 15, 26	450	78¼	78½	77	78½	— 1¾
80½	64	100	70	69	56½	2,000,000	50	Northern Pipe Line	$3S.A.	Jan. 2, 29	50	52¾	58½	52¾	58½	.....
67¾	55¾	67⅞	52	84	58½	60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	1,960	70	72½	69	69	— 4
24¾	15	39	12	84	28	10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	900	31	31⅝	31	31	— 1¼
220	84½	201½	175½	220	167	4,000,000	100	Solar Refining	$58.A.	Dec. 20, 28	100	44	44	44	44	+ 1¾
74½	61½	27¼	15½	19	15	1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	1,200	19	19½	19	19½	+ ⅛
50	34½	41½	35	71⅞	36¾	2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	12,900	59¾	60¼	53½	58⅛	— 4⅝
56	47⅛	83	55½	102	70	3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	50	62¾	62¾	62¾	62¾	.....
70½	60½	81½	64⅝	95⅞	70⅞	228,415,463	25	Standard Oil of Indiana	62½cQ	Dec. 15, 28	27,200	59¾	60	59½	59⅝	— ¼
36½	16½	20⅞	14⅝	27¾	15	8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	1,000	19½	19½	19¼	19½	.....
134⅜	108	130	111½	179¾	122¼	17,012,559	10	Standard Oil of Kentucky	$1Q	Dec. 31, 28	7,600	40	40¾	39½	39¾	— ¼
51⅜	42	49½	40	54⅞	39⅞	4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	No sales.					
372	288	87½	72	134	71	14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	4,600	12½	125	121	124	+ 1
21	15	21	14½	23½	16	861,000	25	Swan Finch Co.	.....	Nov. 1, 19	100	15	15	15	15	— ½
109⅜	90¼	....	....	111	72	125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	6,600	127	129¼	125¼	125¼	— ¾

*Also extras.

July 1. The price is to be fixed as of July 1 of each year, at a level somewhat less than the prevailing open market value, but in no case shall the price be fixed below the par value.

Any employe, including officers and directors, who has been in the employ of the company for two years or more may participate.

Royalite Oil

The seventh annual report of the Royalite Oil Co., the chief Imperial Oil subsidiary operating in the Turner Valley Field, shows net profits for 1928 amounting to $670,413.71, compared with $476,901.32 in 1927. Income for 1928 was $1,724,488.54, compared with $1,353,350.83 the year previous; while disbursements were $1,054,074.83, as against $876,449.51 in 1927.

Standard Oil New York

Net income of the Standard Oil Co. of New York and subsidiaries amounted to $39,645,227 in 1928 after depreciation, depletion, insurance, taxes and interest. This is equal to $2.28 a share on the 17,363,783 common shares outstanding at the end of the year and is more than three times the 1927 net, which was $11,414,888, or 67 cents a share.

Current assets totaled $228,336,767, against $218,730,399 in 1927. Cash on hand and in banks represented $20,136,680, compared with $14,040,705; accounts and notes receivable, $47,000,796,

(Continued on Page 152)

MOVEMENT LOOKING TO NATIONAL ORGANIZATION

(Continued from Page 38)

dent, and M. P. Norwood, Sapulpa, Okla., scout with the Prairie Oil & Gas Co., secretary treasurer.

A vote of thanks for work performed in the last year was extended to the retiring officers, including F. J. Hill, Shawnee, president; C. R. Welch, Ponca City, and Robert P. Brewer, Jr., Wichita, vice presidents, and Simon Crites, Bristow, Okla., secretary treasurer and to the retiring directors, Rex L. Dawson, Tulsa, chairman; Harry Langspecht, Tulsa; C. E. Hewitt, Okmulgee, Okla.; G. W. Greenlee, Cushing, Okla.; B. B. Braley, Seminole, Okla.; D. D. Thompson, Shawnee; James R. Craun, Pawhuska, Okla.; E. J. Gordon, Eldorado, Kans., and John Young, Ponca City. Mr. Crites declined re-election as secretary treasurer. A golf bag was given to him on behalf of the association, the presentation speech being made by the retiring president, Mr. Hill, who commented on the earnest, painstaking labor done by Mr. Crites. A vote of thanks was extended also to the city of Wichita and its people for the hospitality accorded the visitors.

Banquet Friday Evening

Speakers at the banquet Friday evening were Ray M. Collins, Tulsa, chairman of the Oklahoma Proration Committee; L. E. Phillips, chairman of the executive committee of the Phillips Petroleum Co., Bartlesville, Okla., and Mr. Lutz, of the National Oil Scouts Association. Fred J. Hill was toastmaster and an address of welcome was given by Frank Priest, vice president of the Wichita Chamber of Commerce.

Mr. Collins, who has acted as umpire in the Seminole Field since the movement began there in 1927 to hold production more nearly in line with requirements, said that in great measure he had based his estimates for proration purposes upon the reports made by oil scouts. He emphasized the importance of the scout's task and urged utmost vigilance in the attainment of accuracy.

"By proration of production in the Seminole district the producers have saved the industry millions of dollars," said Mr. Collins. "It is true that the industry as a whole and the majority of the operators would be millions to the good if the Seminole Field never had been discovered or if the operators in that area had produced their wells in the old-fashioned way. The production engineers and the geologists have contributed their share toward creating this worldwide overproduction, but I believe that the greatest factor is the spirit of competition between operators and between the states producing oil in excessive amounts. I would like to see the Mid-Continent Petroleum Association, the independent producers and the major companies unite in a solid front to bring to a successful conclusion the plans for controlling overproduction formulated by the American Petroleum Institute through its committees.

Must Consider Problem as Whole

"We must consider the overproduction problems as a whole. Oklahoma and Kansas may be able to take care of every barrel of oil they can produce in 1929. On the other hand, unless there is some plan to co-operate along such lines as those outlined by the A.P.I. it is possible that some new pool, such as Asher, Oklahoma City, or Wichita, may cause another flood of oil that will keep prosperity just around the corner."

Mr. Phillips said the oil business had ceased to be a hit-or-miss proposition and had become one technically organized, in which the scout and land men played important parts. He stressed the vital need of "square shooting," saying:

"It is difficult now for anyone to keep any new strike hidden for any length of time. As in the past, there is still a suspicion surrounding the industry which you represent and when a new well is drilled the royalty owner is glad to surround it with all the mystery possible. He is sure there was oil and that you have only folded up your tent and left because you want to pull off some underhanded trick. I counsel you to shoot straight. Do not tell business lies—sooner or later they come home to roost."

Cut-Throat Competition Hurtful

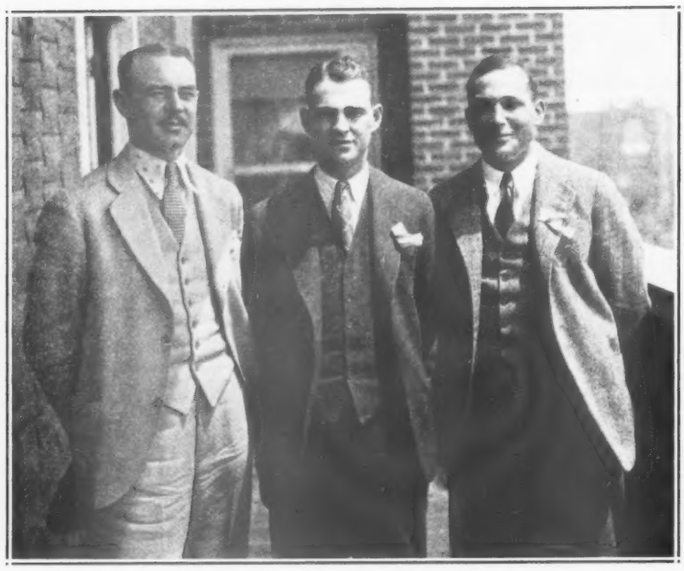
"Modern business executives have discovered the old methods of cut-throat competition and treating their competitors as enemies is hurtful. Therefore, there is now and has been a growing tendency toward helpful and understanding co-operation. With this better understanding of honest rivalry in business comes a more sure and stable profit."

Mr Lutz devoted his talk chiefly to the subject of consolidation of scouting organizations into a national body, what he said being largely preliminary to his part in the discussion of the same subject at the business session the next day.

Friday was devoted chiefly to registration and renewal of friendships among the 200 scouts and land men attending the convention. In the afternoon many of the visitors played golf at the Crestview Country Club. Following the business meeting Saturday forenoon a barbecue was held near Norwich. A bridge luncheon for ladies who accompanied members of the association was held at the Crestview Country Club Saturday afternoon, under the supervision of Mrs. V. C. Walling. A dance Saturday night closed the program. All sessions of the convention were held in the Broadview Hotel, as were the banquet and the dance.

The selection of the place for the 1930 convention was left to the new officers and directors.

SCOUTS AND LAND MEN ASSOCIATION OFFICERS



Left to right—Clark Pigott, Pure Oil Co., Ponca City, second vice president; Robert P. Brewer, Barnsdall Oil Co., Wichita, Kans., president; Ralph Walkingstick, Tidal Oil Co., Shawnee, Okla., first vice president.

CALIFORNIA SHUT IN 70,000 BARRELS DAILY

(Continued from Page 29)

fecting production problems. The method of determining an equitable manner of proration will ultimately be approved by engineers familiar with each area.

Situation at Elwood

The Barnsdall and Rio Grande have not yet cut production in the Elwood Field of Santa Barbara County, but definite action is anticipated upon the return of President R. A. Broomfield of the former company from New York next Tuesday. These two operators, however, have complied with the general order in all other fields where either has production. The situation at Elwood is a rather complex one and will probably receive special consideration in the event of an appeal to Umpire van Deinse. This field, being developed jointly by the Barnsdall and Rio Grande, is an area of extremely high gas pressure and one which might be irreparably damaged unless handled very carefully. All of the 10 producers finished in this field up to the present time show casing pressures considerably in excess of 1,000 pounds to the inch. Every well in the field is severely beaned down by the use of flow nipples, the gradation of each being established in accordance with the generally accepted theory which contemplates the maintenance of the most favorable gas-oil ratio with due consideration being given to the safety factor. The reduction of production in this field is rendered further difficult because of possible tideland development, which is reported to have been temporarily delayed by court injunction. A considerable portion of the Elwood structure is located out in the open ocean beyond mean high tide and is therefore susceptible of development if those holding tideland drilling permits are allowed to engage in promiscuous development. The Barnsdall and Rio Grande have limited their drilling operations at Elwood to an absolute minimum and it would obviously be quite unfair to penalize these operators if the projected reduction in production would be advantageous to those holding tideland drilling permits. An attempt to shut in a well at Elwood resulted in a blow out 250 feet from the well.

Continental Oil Co.'s wildcat just back of the ocean at Carpenteria, Santa Barbara County. Note proximity of S.P.R.R. tracks.

Kettleman Hills

The Kettleman Hills Field of Kings County presents another difficult problem from a curtailment standpoint, and, while this district was not included in Umpire van Deinse's general order No. 1, it will be taken care of in a later order, provided operators fail to mutually decide upon some definite program regulating its development. The committee appointed last week, consisting of E. D. Reiter, Ellsworth McGowan, W. H. Berg, W. L. McLain, R. E. Ferguson, J. H. Raney and P. N. Longan, has held several preliminary meetings but has not yet arrived at any definite basis of action. Several suggestions have been considered, but all plans have been held in abeyance pending a general meeting to be held in the office of Umpire F. C. van Deinse, April 29. One proposal contemplated the limiting of field production to 40,000 bbls. per day for a period of at least one year, but this is not deemed feasible. Every operator interested in the Kettleman Hills Field is entirely in sympathy with the movement to retard development in this area until a more opportune time and something definite will therefore be accomplished.

The Milham Exploration Co., which discovered this prolific area, is in hearty sympathy with any plan which will permit delayed development and even went so far as to offer to kill its discovery well if other operators would protect the company against loss in the event of a disastrous blowout or lost hole. No. 1 Elliott, the Milham's discovery, has averaged approximately 3,550 bbls. of oil and 40,000,000 feet of gas per day for the past two months. Five gas traps are required to handle the flow of this prolific producer and the refusal of operators to accept the Milham's offer confirms opinion of competent field men that it is almost physically impossible to shut in this well because of the extremely high gas pressure.

Mount Poso Field

The Mount Poso Field of Kern County, discovered by the Shell Oil Co. late in 1926, is scheduled to be opened up some time within the next few weeks unless something can be done to secure an extension of time. Land owners in this area are demanding the fulfillment of lease requirements which stipulate consistent development and the production of oil following completion. A total of 57 wells have been completed in this field up to the present time and shut-in production aggregates approximately 15,400 bbls. per day. This district yields a heavy oil not any too susceptible to refining and the industry will naturally make a very determined effort to maintain existing restrictions as the output of this field would result in a further accumulation of heavy crude and fuel oil, the storage of which at the present time aggregates in excess of 102,000,000 bbls. Mount Poso does not present any particularly threatening condition, although it would impose an additional burden on marketers interested in that district since they would be obliged to store any oil produced. Negotiations for an extension of time have been under way for the past few weeks and a satisfactory adjustment may be reached soon.

INSTITUTE AWAITS OIL BOARD'S PLAN

(Continued from Page 29)

gestion, if it can be consummated on constructive lines, should extend the life of our oil resources and give greater stability to the industry, should vastly increase the returns to those states, and at the same time should protect the consumer.'

"It was the unanimous opinion of the Institute directors that the Institute cooperate with the Federal Oil Conservation Board in the study of its program and in any further efforts toward the conservation of petroleum, and that it should lend its aid in the continued study of any undertaking which promises best to bring about this result."

Industry Strong for Conservation

E. B. Reeser, president of the Institute, amplified this statement somewhat in an interview at the conclusion of the board meeting. He declared that the industry was as strong for conservation as ever and just as determined to prevent further waste of oil resources. The industry will wait, he said, for the report of Doctor Smith to the Federal Oil Conservation Board on the results of the series of conferences which he is holding with the governors of the

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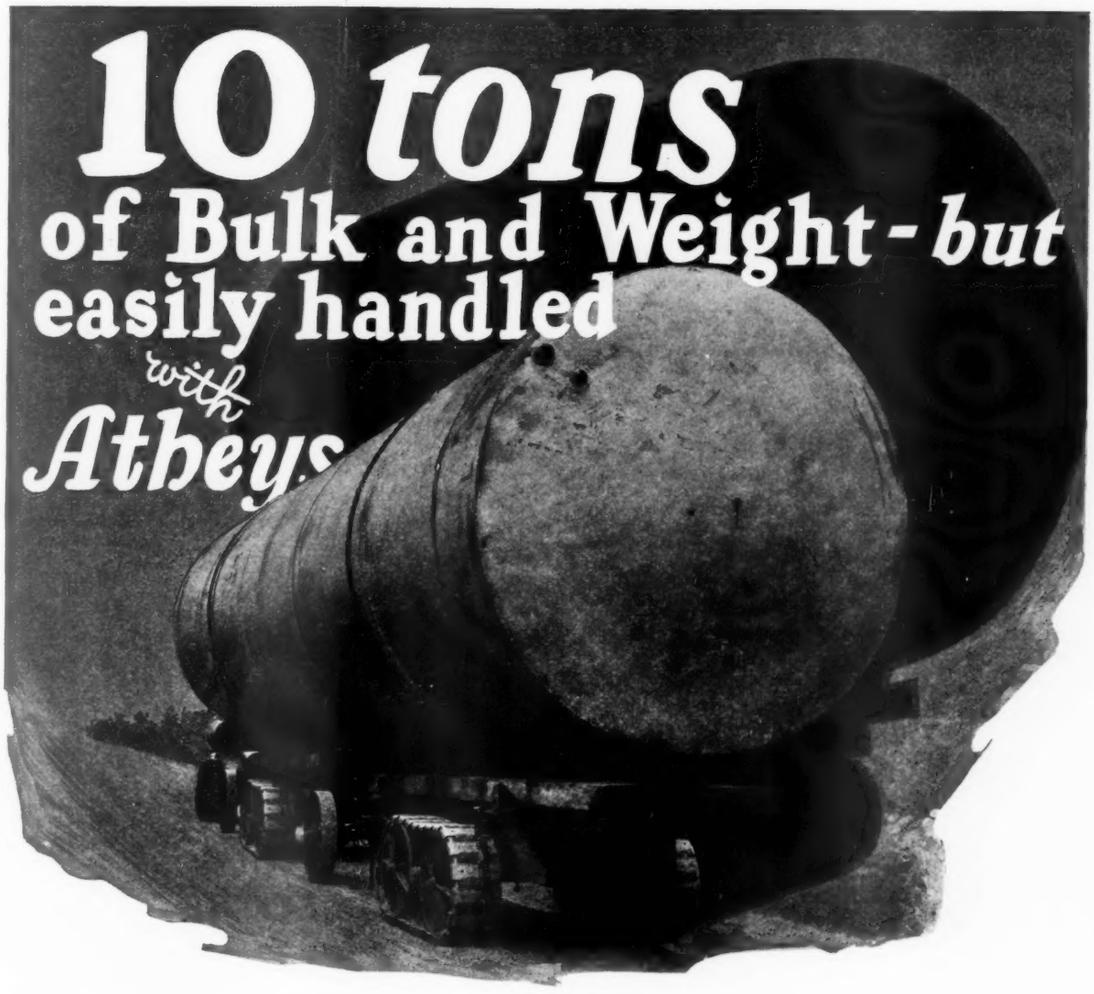

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ATHEY TRUSS WHEEL WAGON
IT BRIDGES THE SOFT SPOTS

principal oil producing states, relative to the suggested interstate compact.

Pending further developments in the Oil Conservation Board's proposed plan, Mr. Reeser continued, the Institute's plan for limiting domestic production for the balance of 1929 to 1928 levels will be held in abeyance.

Talk among some of the oil men in attendance at the Institute meeting indicated that the final decision to await action by the Federal Oil Conservation Board had been arrived at after a most thorough discussion of all the salient points in the matter. Executives of several of the leading oil companies presented the opinions of their counsel to the effect that the Institute's original conservation plan would not violate any of the laws against restraint of trade, and stressed the fact that at no time has Attorney General Mitchell declared the Institute's proposed program to be illegal.

On the other hand, some other interests advocated the entire withdrawal of the Institute's conservation plan in favor of a move to secure an interstate curtailment agreement among the principal oil producing states.

A third view which has been advanced in some quarters of the industry is in favor of seeking the solution to the overproduction problem solely through co-operation within the industry, leaving aside entirely any effort to obtain either national or state action in this direction.

While the Institute's conservation program will be held in abeyance pending further developments in the Federal Board's plan, the various regional committees recently appointed to work out suggested plans for controlling crude oil output in their respective territories will be continued. In addition, the proration plans in the principal oil producing areas will be continued with no letup anticipated in the co-operation which the principal producing interests have been extending the conservation movement. It was pointed out after the Institute meeting here that there is general recognition in the petroleum industry of the vital need for the avoidance of excessive crude production, and the various steps which have been taken to curb waste and overproduction will continue in effect, with possible further action among local groups to curb output. The general committee, headed by R. C. Holmes, will also continue in existence, pending a definite decision as to the procedure to be followed by the Institute. No special meeting has been called for further consideration of the conservation problem, and the directors of the Institute are not scheduled to come together until their next regular meeting on May 28.

Deterding Pledges Support

Sir Henri Deterding, director of the Royal Dutch Shell group, is still 100 per cent for the original plan of the American Petroleum Institute which was presented to the Federal Oil Conservation Board. In a cablegram to the Institute, Sir Henri stated that nothing occurred at the Washington meeting between the Institute representatives and the Federal Oil Conservation Board to warrant any change being made in the plan and he advised going ahead with the original program, pledging his full co-operation.

The meeting here this week was attended by the following oil leaders: Amos L. Beaty, treasurer, American Petroleum Institute; Axtell J. Byles, Tidewater Associated Oil Co.; J. S. Caroll, Johns-Manville, Inc.; William N. Davis, Phillips Petroleum Co.; T. A. Dines, Midwest Refining Co.; O. D. Donnell, Ohio Oil Co.; H. B. Earhart, White Star Refining Co.; W. S. Farish, Humble Oil & Refining Co.; W. S. Fitzpatrick, Prairie Oil & Gas Co.; W. C. Franklin, Tidal Oil Co.; John L. Gray, Shaffer Oil & Refining Co.; R. C. Holmes, The Texas Company; W. M. Irish, Atlantic Refining Co.; Roy B. Jones, Panhandle Producing & Refining Co.; C. H. Kountz, Prairie Pipe Line Co.; E. G. Seubert, Standard Oil Co. of Indiana; J. Howard Pew, Sun Oil Co.; Herbert L. Pratt, Standard Oil Co. of New York; E. B. Reeser, Barnsdall Oil Co.; Mark L. Requa; W. G. Skelly, Skelly Oil Co.; Charles L. Suhr, Pennzoil Co.; Walter C. Teagle, Standard Oil Co. (New Jersey); J. C. Van Eck, Shell Union Oil Corp.; George P. Whaley, Vacuum Oil Co.; Richard Airey, Asiatic Petroleum Co.; C. B. Ames, The Texas Company; Frank Coates, H. L. Doherty & Co.; James Owen, Salt Creek Consolidated Oil Co.; H. C. Bretschneider, Midwest Refining Co.; C. W. Hadley, Vacuum Oil Co.; Arthur Corwin, Standard Oil Co. of New York; B. H. Stephens, Magnolia Petroleum Co.; Lionel T. Barneson, General Petroleum Co.; E. J. Bullock, Standard Oil Co. of Indiana; A. E. Watts, Sinclair Consolidated Oil Co.; D. W. McIlvane, Pure Oil Co.; E. J. Sadler, Creole Petroleum Co., and Fayette B. Dow, general counsel, American Petroleum Institute.

By May 28, the date of the next regular meeting of the board of directors of the American Petroleum Institute, it is hoped to have some definite word from the Federal Oil Conservation Board, Mr. Reeser declared. "We are just as strong for conservation as ever," he said. "The decision we have reached is the best that we could reach under the circumstances."

Dr. George Otis Smith, member of technical committee of the Federal Oil Conservation Board, has informed Secretary Wilbur, chairman of the board, that the Governor of California is friendly toward the plan for forming a compact of oil states to control oil production.

Mark L. Requa has left for California to confer with the governor of that State for support of the compact to control oil production. He will visit other governors of oil states and will devote his time as a private citizen to promote this movement.

PANHANDLE FIELDS

(Continued from Page 39)

Co.'s No. 1 Burnett swabbed 37 bbls. in 10 hours at 1,414½ feet. Its No. 2 Burnett had an initial production of 46 bbls. first 24 hours at 1,407 feet. Venmex Oil Co.'s No. 15 Waggoner Brothers had an initial production of 15 bbls. at 877 feet.

Wilbarger County

Burton's No. 1 Waggoner had an initial production of 125 bbls. at 2,410-2,428 feet. Carter's No. 1 Waggoner had an initial production of 90 bbls. at 1,993 feet. Golding Cochran and others' No. 3 Waggoner had an initial production of 200 bbls. at 2,435-2,446 feet. Lawson's No. 1 Waggoner was dry and abandoned at 2,493 feet. Phillips Petroleum Corp.'s No. 1 Waggoner was drilled to a total depth of 2,290 feet and had an initial production of 69 bbls. Schuct and others' No. 1 Waggoner was dry and abandoned. Phillips Petroleum Corp.'s No. 4 Waggoner had an initial production of 25 bbls. at 2,379-2,395 feet. Staley, Wynne & Co.'s No. 5 Waggoner had a ninitial production of 320 bbls. at 2,422 feet.

Young County

Bratcher's No. 3 Prideaux had an initial production of 5 bbls. at 498 feet. Continental & Underwood's No. 2 Campbell was dry and abandoned at 927 feet. May Camp Drilling Co.'s No. 2 Prideaux was dry and abandoned at 625 feet. Riggs & Oliphant's No. 2 Langston was dry and abandoned at 623 feet. Steed & Gans' No. 14 Snider was drilled to a total depth of 610 feet and was dry and abandoned. Sun Oil Co.'s No. 1 Rogers was dry and abandoned at 1,063 feet. Underwood Drilling Co.'s No. 1 Edwards was dry and abandoned at 850 feet. Wooten & Reed's No. 1 Alexander was dry and abandoned at 590 feet. Paull Oil Co.'s No. 1 Eddleman Blount was dry and abandoned at 3,992 feet.

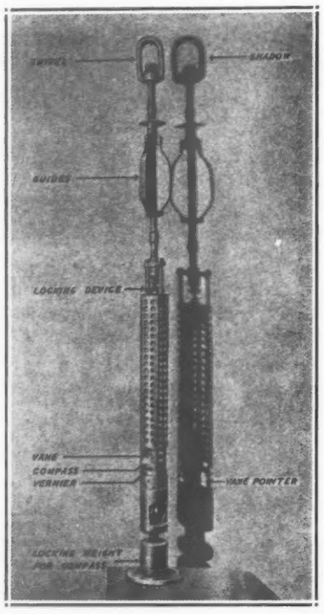
CRUDE OIL FLOWS DOWNWARD INTO WELL

(Continued from Page 31)

pressure is in general at the highest point structurally.

5. It will be a decided aid to the economic development of any given area through being able to secure the maximum amount of oil with the fewest possible wells, because the drainage area of each well can be determined from the direction of the inflow.

6. Its use will result in a producing well if the direction pointed by the Indicator is followed. While we do not guarantee larger production than in the well tested it usually follows.



The Oil Flow Indicator.

When to Use It

1. In all wells on all properties in which development is carried on.

2. In all wildcat areas where the geologic structure cannot be definitely determined and where the condition of the sand or producing formations are unknown.

3. In all areas where the producing sand is lenticular or spotted.

4. In districts where the greatest production is limited to small areas which cannot be determined from well logs or surface structure.

5. In districts where the pay zone is irregular due to changes in porosity, which cannot be predetermined. In such cases economical development depends on following the oil to the point of the greatest pressure or at least knowing where that point is.

6. In all repressuring work, in order to secure maximum results with the minimum of effort.

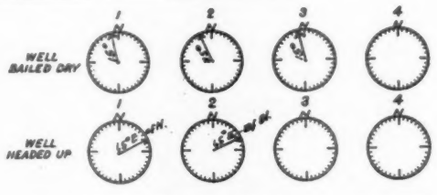
7. In all wells where it is thought probable that repressuring may be done at a later date.

8. In wells making water, because the determination of the direction of flow will have a bearing on the treatment to be given each well.

Sample charts of tests made by the Indicator together with maps of areas included in these sample tests, which accompany this article, give an idea of how the data procured are correlated and how used by the geologists and production men in locating new wells.

L. E. TROUT & COMPANY
OPERATING
THE OIL FLOW INDICATOR
712 HAMILTON BLDG. PHONE 2-2671
WICHITA FALLS, TEXAS

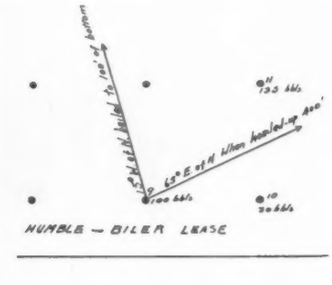
LEASE Biler COMPANY Humble Oil & Ref. Co. DATE February 1929.
COUNTY Brown STATE Texas



AMT OF SAND WATER OIL WATER INITIAL PROD.
RECOMMENDATION Location: North one - East one
RUN BY L.E. Trout. COMPANY REP. OR OPERATOR W.K Eggen

The above test sheet shows the record of tests run on the No. 9 Biler, Humble Oil & Refining Co., Brown County, Texas. The structural conditions were fairly well known. No. 9 well was apparently south of the axis of the structure and was so shown by the Indicator. This well was swabbing about 100 bbls. per day and headed up rather quickly. The Indicator was allowed to remain in the well 10 minutes each time run. The first two readings were slightly north of west. The next two 65 degrees east of north. The well was then swabbed down to the bottom of the pipe 80 feet above bottom and again tested and the No. 3 reading obtained.

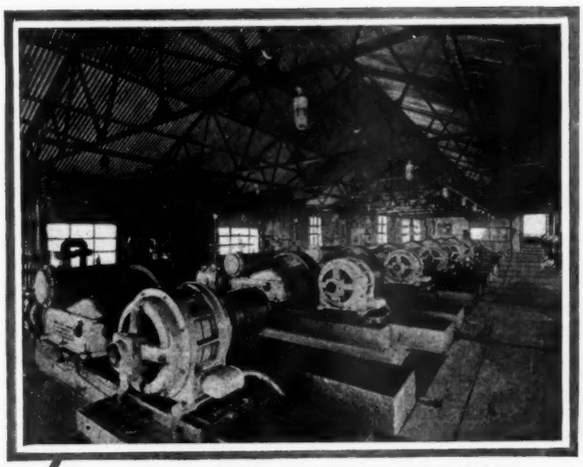
The following summary was made of the readings: 1. That the structure on the sand lay in a slightly northwest-southeast direction. 2. That the apex of the structure was north of No. 9. 3. That the sand is more porous to the west of north but the highest pressure point lay north 65 degrees east. The best location was selected as being diagonally northeast, because the location to the northwest had already been drilled and was a good well.



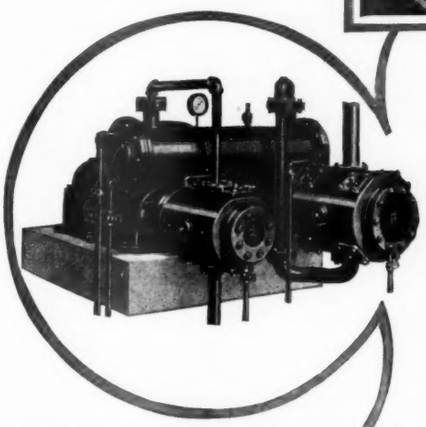
SHELL P. L. STATEMENT

The Shell Pipe Line Corp., which runs crude oil from fields in Kansas, Oklahoma and West Texas, reports runs of 2,835,773.23 bbls. in March and shipments in the same month of 3,205,221.94 bbls.; excess of shipments over runs for the month 369,449 bbls., or an average of 11,918 bbls. per day. The March statement, when compared with the same company's February statement is an indication of the tight crude situation in the Mid-Continent. The company's shipments in the two months showed little difference the February deliveries having averaged 103,394 bbls. per day and those of March 103,185 bbls. per day, but the runs in the two months showed a marked difference. In February the company ran 106,411 bbls. per day from the leases with which its gathering lines are connected, but in March only 91,477 bbls. per day was available, making a draught on stocks necessary to fullfil crude contracts with the refineries.

Whatever Your Power, The XOB Can Use It!



XOB Compressors Driven by Electric Motors.



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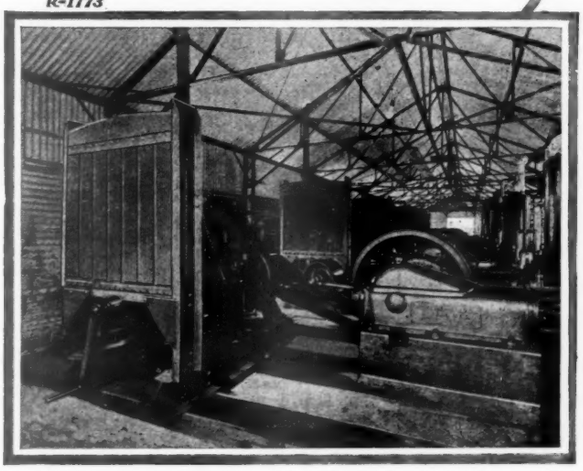

XOB Compressors Driven by Waukesha Gasoline Engines.

For air lift and gas lift work, it is highly desirable to have a compressor that is quickly and easily convertible from one type of drive to another. Changing conditions often call for a change in the power source.

Being a belt-driven compressor, the XOB can be operated by electric motor, gasoline engine, or gas engine. It is not restricted to one medium of power and can be quickly converted from one type to another.

This convertibility is but one of the many special qualifications of the XOB for oil-field service. It fits all requirements because it was designed for this particular work.

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Ingersoll-Rand

WEST TEXAS FIELDS

(Continued from Page 40)

Oil Co.'s No. 1 Kloh, located 2,310 feet from north and east of Section 47, Block 48, was dry and abandoned at 3,105 feet.

Reagan County

Oberholtzer's No. 1 Talley, located 1,650 feet from south and 330 feet from west of Section 6, was dry and abandoned at 3,012 feet.

Tom Green County

Green and others' No. 1 fee was dry and abandoned at 1,931 feet. McLaughlin & Ridge's No. 1 Holder was dry and abandoned at 3,003 feet. Tinker and others' No. 1 D. J. Jones was dry and abandoned at 1,010 feet.

Winkler County

Atlantic Oil Producing Co.'s No. 5 Hendricks-B, located 1,320 feet north and 2,310 feet east of Section 44, Block 26, topped the lime at 2,799 feet, topped the pay at 2,875 feet, was drilled to a total depth of 2,925 feet and made 25 bbls. hourly.

Gulf Production Co.'s No. 1 Scarborough, located 2,310 feet north and 990 feet east of Section 1, Block C-22, topped the lime at 2,640 feet, topped the pay at 3,017 feet, was drilled to a total depth of 3,350 feet and had an initial production of 105 bbls. daily. Shell-Llano Oil Co.'s No. 5 Scarborough, located 990 feet west and 330 feet south of Section 3, Block C-22, was dry and abandoned at 3,103 feet. Southern Crude Oil Purchasing Co.'s No. 5 Hendricks, T-68-3-A, located 1,650 feet north and 990 feet west of Section 35, Block B-5, had an initial production of 14 bbls. hourly at 3,030 feet. Southern Crude Oil Purchasing Co.'s No. 1 Hendricks, T-88-CX, located 440 feet south and 330 feet east of Section 21, Block 26, flowed 900 bbls. at 2,825 feet. Southern Crude Oil Purchasing Co.'s No. 4 Hendricks, T-89-J, located 440 feet north and 1,320 feet east of Section 8, Block 26, had an initial production of 400 bbls. daily at 2,968 feet.

Oil Movement

Reports on oil movements in West Texas, for week ended April 17, show that runs to storage jumped from a few hundred barrels to 5,000 bbls. daily. This was brought about through a decrease in runs to refineries, and runs through trunk lines. Tank car shipments show an increase. However, supply and demand is virtually in equilibrium, and when one other line, running out of West Texas, starts handling anything near its capacity it is expected drafts will be made on storage. Moreover, an increase in runs to refineries is expected. One plant that is shut down because of a fire, is scheduled to start running the first of the month.

The following is a detailed report of crude oil movements, and a comparative summary table:

PIPE LINE

April 10 to April 17 (inclusive)
Runs Through Trunk Lines

	Last period
Atlantic P. L. Co. to Port Arthur, Tex.	36,995
Gulf P. L. Co. to coast via Ranger, Tex.	23,165
Humble P. L. Co. via Comyn, Tex.	37,946
Humble P. L. Co. via Ingleside, Tex.	52,050
Illinois P. L. via Del Rio, Tex.	37,000
Magnolia Pet. Co. via De Leon, Tex.	27,879
Pasotex P. L. Co. to El Paso, Tex.	11,094
Shell P. L. Co. to Healdton, Okla.	40,343
Shell P. L. Co. to Houston, Tex.	3,842
Total	270,314

Tank Car Shipments

Thomas & Brann, Grant City, Tex.	175
Orient, McCamey, Tex.	150
The Texas Company, Crossett, Tex.	581
American Pet. Co., Pyote, Tex.	9,957
Southern Crude O. P. Co., Wickett, Tex.	16,219
Skelly Oil Co., Pecos, Tex.	2,273
Burford Oil Co., Pecos, Tex.	55
Total	29,410

Runs to West Texas Refineries

Amarillo Prod. Co., Pyote, Tex.	1,972
Col-Tex Ref. Co., Colorado, Tex.	6,500
Burford Ref. Co., Pecos, Tex.	5,498
Cosden Ref. Co., Big Spring, Tex.	7,929
Great Western Ref. Co., Big Spring, Tex.	2,766
Humble Oil & R. Co., McCamey, Tex.	10,939
Midland Ref. Co., Midland, Tex.	993
Tonkawa Ref. Co., Pyote, Tex.	2,561
Valley Ref. Co., Pyote, Tex.	4,057
Big Spring Ref. Co., Big Spring, Tex.	2,516
Total	45,731

Summary

	Previous week	Last period
Pipe line run through trunk lines	278,219	270,314
Tank car shipments	26,623	29,410
Runs to West Texas refineries	48,355	45,731
Total daily disposition	353,197	345,455
Daily average production	352,966	350,433
Daily average to storage	231	4,978

PECOS COUNTY
YATES POOL
Week ending April 23

Company, lease—	Wells	Prod.
California Co.:		
Yates—Lease 1	17	6,697
Smith—Lease 1, Sec. 27	3	425
Smith—Lease 1, Sec. 23	7	1,472
Smith—Lease 1, Sec. 21	3	855
Smith—Lease 2	2	181
Smith—Lease 3	12	2,008
Tippett—Lease 1	1	36
Cosby Drilling Co.:		
Smith	1	257
Gulf Prod. Co.:		
All leases	35	11,836
Humble O. & R. Co.:		
Smith-A	10	1,427
Smith-B	5	783
Kirby Pet. Co.:		
Tippett	2	60
Kirby Pet. and Edson:		
Tippett	1	202
Marland Oil Co.:		
Yates-A	8	263
Yates-A-S	5	595
Matador Oil Co.:		
Smith	2	585
Mazda & Savoy:		
Smith	3	666
McCarty Oil Co.:		
Gray	1	....
McMan Oil & Gas Co.:		
Smith-A	1	1,199
Smith-B	4	1,065
Smith-C	4	495
Tippett	2	278
Richardson	1	64
McMan and Marland:		
Yates	17	4,079
Mid-Kansas and Transcon.:		
Yates-A	23	11,958
Yates-B	27	5,724
Yates-C	11	5,783
Yates-D	6	6,359
Yates-E	1	87
Yates-F	4	649
Yates-G	4	993
Yates-H	8	5,314
Smith	4	1,412
Smith	18	5,226
Yates-C-3	1	237
Grayburg Oil Co.:		
Pecos River Bed	7	750
Seepage	..	1,500
Pecos Valley Oil Co.:		
Fee, Sec. 22, Blk. 26	2	80
Phillips Pet. Co.:		
Monroe	1	63
Ramsey	1	84
Red Bank Oil Co.:		
Smith	5	462
Shell Pet. Corp.:		
Tippett	11	2,099
Smith	9	923
Smith-B	1	719
Smith-D	3	549
Smith-E	1	20
Simms Oil Co.:		
Smith	7	5,584
Skelly Oil Co.:		
Tippett	1	90
Total Yates Pool	303	92,193

DAILY AVERAGE PRODUCTION BY LEASES

WINKLER COUNTY
Week ending April 23
HENDRICKS POOL

Company, farm, sec., blk.—	Wells	Prod.
Amerada Pet. Corp.:		
Cowden, 3, B-12	3	808
Atlantic O. P. Co.:		
Hendricks-A, 34, B-5	8	1,185
Hendricks-B, 44, 26	4	760
Hendricks-D, 29, B-5	8	2,009
Hendricks-E, 41, B-5	7	2,372
Hendricks-G, 46, 26	7	613
Hendricks-H, 30, B-5	1	15
Atlantic and Collett:		
Hendricks-F, 40, 26	13	1,284
Bankers Prod. Co.:		
Hendricks, 30, B-5	1	57
California Co.:		
Hendricks, 29, B-5	8	1,070
Cranfill & Reynolds:		
Hendricks-A, 28, B-5	2	164
Hendricks-B, 35, B-5	1	85
Hendricks-C, 33, 26	2	234
Hendricks-E, 33, 26	2	416
Cranfill and Texon:		
Hutchings, 47, 26	1	90
Culberson Bros.:		
Hendricks, 40, B-5	1	100
Eastland Oil Co.:		
Hendricks, 35, B-5	2	469
Hendricks-B, 35, B-5	1	210
Gulf Prod. Co.:		
Hendricks-A, 34, B-5	13	3,970
Hendricks-B, 29, B-5	11	7,814
Hendricks-C, 40, B-5	6	2,182
Hendricks, 44, 26	2	685
Cowden, 3, B-12	3	1,638
Humble Oil & Ref. Co.:		
Hendricks-A, 34, B-5	17	5,020
Hendricks-B, 29, B-5	6	1,084
Hendricks-C, 32, 26	8	1,010
Hendricks-B, 47, 26	7	978
Hendricks-C, 10, B-12	9	3,757
Independent Oil & Gas:		
Hendricks-A, 34, B-5	8	1,158
Howe-B, 44, 26	3	448
McCabe, 36, B-5	2	292
Hendricks, 42, B-5	1	9
Hardeman-B, 41, B-5	7	772
Magnolia Pet. Co.:		
Hendricks, 29, B-5	8	669
Marland Oil Co.:		
Hendricks, 33, 26	4	937
Hendricks-A, 29, 26	2	199
Hendricks-B, 34, 26	2	228
May Prod. Co.:		
Hendricks, 34, 26	1	89
American Maracaibo:		
Hendricks-A, 28, B-5	1	34
Hendricks-B, 28, B-5	1	150
Mining & Engineering:		
Hendricks, 10, B-22	1	....
Murchison & Cranfill:		
Hendricks-A, 35, B-5	3	522
Hendricks-B, 35, B-5	3	509
Hendricks-C, 35, B-5	1	4
Hendricks-H, 35, 26	1	1,909
Hendricks-I, 47, 26	2	652
Prairie Oil & Gas Co.:		
Hendricks, 40, 26	6	2,469
Cowden, 3, B-12	6	3,899
Pure Oil Co.:		
Hendricks-A, 41, B-5	11	1,841
Hendricks-B, 34, B-5	13	5,146
Hendricks-C, 45, 26	14	8,398
Hendricks-D, 44, 26	1	263
Republic Prod. Co.:		
Hendricks-A, 45, 26	13	1,938
Hendricks-B, 41, B-5	5	394
Shell Pet. Corp.:		
Hendricks-A, 45, 26	6	2,292
Hendricks-B, 29, B-5	6	1,132
Hendricks-C, 29, B-5	8	1,286
Hendricks-D, 41, B-5	6	248
Hendricks-E, 49, B-5	3	730
Hendricks-F, 46, 26	8	2,111
Hendricks-G, 39, 26	1	....
Shell-The Texas Company:		
Cowden-A, 3-B-12	6	1,256
Hendricks, 45, 26	6	1,907
Hendricks-A, 29, B-5	11	2,719
Hendricks-B, 40, 26	6	811
Hendricks-C, 40, 26	6	1,929
Hendricks-D, 40, 26	6	688
Hendricks-E, 39, 26	4	652
Skelly Oil Co.:		
Hendricks, 40, 26	12	5,610
Hendricks-B, 39, 26	2	35
Hendricks-C, 39, 26	1	481
Southern Crude Oil Purch. Co.:		
T-67 Hendricks-A, 42, B-5	3	136
T-67 Hendricks-3-A, 4, B-12	4	361
T-67 Hendricks-B, 44, 26	5	507
T-67 Hendricks-3-A, 33, 26	5	457
T-67 Hendricks-C, 33, B-5	5	552
T-67 Hendricks-2-D, 28, 26	4	644
T-67 Hendricks-E, 42, B-5	4	111
T-67 Hendricks-F, 33, B-5	4	599
T-68 Hendricks-3-A, 35, B-5	5	129
T-68 Hendricks-B, 46, 26	2	220
T-88 Hendricks-A, 44, 26	6	698
T-88 Hendricks-B, 4, B-12	4	1,015
T-88 Hendricks-C, 29, B-5	7	657
T-88 Hendricks-D, 4, B-12	6	2,548
T-88 Hendricks-H, 28, B-5	6	1,004
T-88 Hendricks-I, 30, B-5	7	1,080
T-88 Hendricks-J, 30, B-5	5	764
T-88 Hendricks-K, 41, 26	5	1,100
T-88 Hendricks-L, 4, B-12	4	713
T-88 Hendricks-M, 33, 26	30	10,898
T-88 Hendricks-N, 28, 26	5	1,031
T-88 Hendricks-O, 28, 26	2	599
T-88 Hendricks-P, 28, 26	1	174
T-88 Hendricks-Q, 27, 26	2	611
T-88 Hendricks-R, 27, 26	2	779
T-88 Hendricks-S, 34, 26	4	1,097
T-88 Hendricks-T, 34, 26	7	578
T-88 Hendricks-U, 41, 26	7	854
T-88 Hendricks-V, 29, 26	1	79
T-88 Hendricks-W, 5, B-12	1	248
T-88 Hendricks-CX, 21, 26	1	395
T-89 Hendricks-A, 35, B-5	3	219
T-89 Hendricks-B, 35, B-5	2	424
T-89 Hendricks-C, 35, B-5	3	616
T-89 Hendricks-D, 35, B-5	1	239
T-89 Hendricks-E, 40, B-5	3	211
T-89 Hendricks-F, 40, B-5	2	289
T-89 Hendricks-H, 46, 26	1	302
T-89 Hendricks-I, 10, B-12	2	527
T-89 Hendricks-J, 9, B-12	4	1,508
T-90 Hutchings, 47, 26	1	343
Texon Oil & Land Co.:		
Hendricks-A, 41, B-5	6	635
Hendricks-B, 45, B-5	6	1,272
Winkler O. P. Co.:		
Hendricks, 33, 26	1	62
Grand total Hendricks Pool	561	134,089

LECK AREA

Atlantic-Kesslar & Logan:		
Leck, 3, 74	2	507
Amerada Pet. Corp.:		
Leck, 3, 74	2	633
Empire G. & F. Co.:		
Daugherty, 3, 74	3	702
Magnolia Pet. Co.:		
Scarborough, 1, C-22	1	197
Gulf Prod. Co.:		
Scarborough, 1, C-22	1	67
Shell-Llano Oil Co.:		
Scarborough, 1, C-22	3	179
Shell-Danciger:		
Leck, 3, 74	2	242
Skelly Oil Co.:		
Leck, 3, 74	1	319

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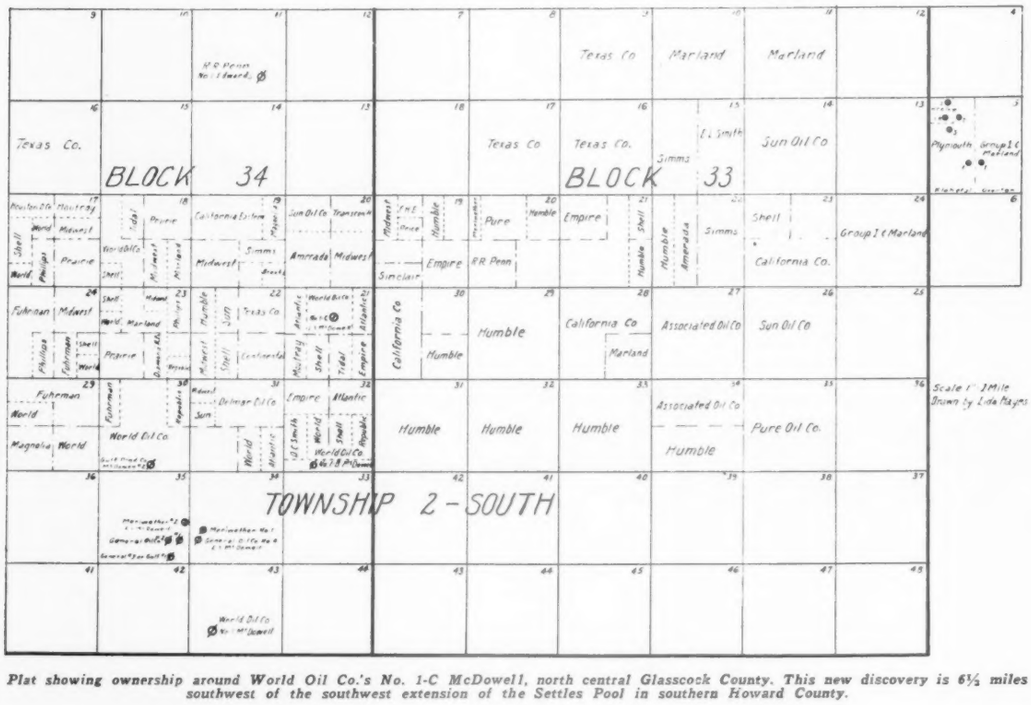


Plat showing ownership around World Oil Co.'s No. 1-C McDowell, north central Glasscock County. This new discovery is 6½ miles southwest of the southwest extension of the Settles Pool in southern Howard County.

Company, farm—	Wells	Prod.
Prairie Oil & Gas Co.:		
Leck, 3, 74	1	567
Daugherty, 3, 74	1	346
Scarborough, 1, C-22	1	18
Warner-Quinlan:		
Leck, 3, 74	1	431
Total Leck Pool	19	4,203
O'BRIEN POOL		
Marland Oil Co.:		
Morton, 10, B-12	2	321
Wentz Oil Corp.:		
Morton, 10, B-12	1	207
Simms Oil Co.:		
Sealy, 50, F	1	19
Richardson et al:		
Stockton, 50, F	1	147
Total O'Brien Pool	5	694
Grand total Winkler Co...	585	138,977

Late Fields

(Continued from Page 38)

5-7-7e. Seminole County, in the east extension to the Little River Pool, had the top of the Wilcox sand at 4,223-33 feet. The well flowed 5,675 bbls. in 24 hours ending Monday morning.

Mid-Continent Petroleum Corp.'s No. 15 Fleet in the NW cor. SW SE, Section 7-5-8, Seminole County, a twin well, produced 825 bbls. natural in 24 hours on Monday morning's gauge from the Wilcox at 4,135-40 feet. It is the third producing Wilcox sand well in the Allen Pool.

Independent Oil & Gas Co. and Mid-Continent Petroleum Corp.'s No. 1 McGirt in the SE cor., Section 31-9-9, Hughes County, made 310 bbls. natural from the Cromwell sand at a total depth of 3,555 feet in the gauge taken on Monday morning.

The production in the Greater Seminole area over the week end was reduced 60,693 bbls. The following gauges are for Sunday and Monday, April 28 and 29:

Pool—	Apr. 28	Apr. 29
Little River	78,381	65,043
Carr City	13,784	10,407
Maud	14,661	14,889
Mission	30,362	25,159
Bowlegs	35,748	25,681
Earlsboro	63,134	49,490
Seminole	33,390	26,452
Searight	12,315	10,574
Total	281,775	227,695
St. Louis	90,001	83,388
Grand total	371,776	311,083

Atlantic Oil Producing Co. and Independent Oil & Gas Co.'s No. 1 Burke, in the SW cor NE Section 16-7-4, Pottawatomie County, in the north extension to the Pearson Pool, was in the Hunton lime at 3,648 to 3,715 feet and in 19 hours, ending Monday morning, it flowed 1,095 bbls.

The Sunday shut-down plan over the last week reduced the production in Seminole and St. Louis areas 67,782 bbls. Eleven companies observed the plan compared with nine the week before. The following table shows the production for two days by companies:

Company—	Saturday	Sunday
Barnsdall	14,624	7,212
Prairie	49,164	18,411
Producers & Refiners	1,455	1,825
Shell	8,678	989
Atlantic	1,638	181
Continental	2,798	662
Skelly	7,874	5,568
Magnolia	34,300	21,544
Tidal	7,951	6,362
Shaffer	1,490	1,190
Mid-Continent	14,219	12,465
Total	144,191	76,409

The Indian Territory Illuminating Oil Co.'s No. 1 fee in the C SE SE Section 24-11-3w, Oklahoma County, produced 3,034 bbls. of oil and 539 bbls. of water on Tuesday morning's gauge. The well has been averaging about that for several months.

Tuesday morning's gauge on the Irwin & Martin's No. 1 in the SE cor. NE NE Section 2-7-4 was 1,705 bbls., a decline from the high of 2,460, recorded last Sunday.

The Simms Oil Co.'s No. 1 Lester, SE cor. NE NE Section 19-6-4, Pottawatomie, produced up to April 30, 43,119 bbls. of oil since it was drilled in on April 12. The production in the 24 hours ending Tuesday morning was 3,135 bbls.

GULF COAST

HOUSTON, Tex., Apr. 30.—Production of the DeWalt Dome, Fort Bend County, was extended approximately 2,700 feet to the southeast Monday when Humble Oil & Refining Co. completed its No. 2 Nelson flowing 1,200 bbls. daily from 3,592 feet. This gives the proved field a length of over 6,000 feet from northwest to southeast. Abercrombie & Harrison's No. 1 Reviere, Liberty shallow area, blew in Monday flowing an estimated 250 bbls. daily from sand at approximately 1,900 feet.

COLORADO

DENVER, Colo., Apr. 30.—Texas Production Co.'s No. 11 Knowlton, SE cor., Section 33-5n-91, Moffat Dome, northwestern Colorado, topped Sundance sand at 4,575 feet and started flowing 32 bbls. per hour, continuing at that rate for 17 hours when hole caved and shut off flow. Hole was cleaned to bottom and began flowing again at same rate. Same company's No. 5 Wick, Section 10-4n-91, on Moffat Dome, also a test to Sundance, topped pay at 4,851 feet; hole filled with oil and slopped over. It swabbed 442 bbls. in 18 hours and did not make any water. Upon being completed it is expected to do better. Last year the company drilled a Sundance test, the first to reach the horizons below the Dakota, from which production previously came. On account of the condition of the hole the test did not fully indicate the value of the discovery and No. 11 Knowlton was started with rotary to explore the sand. At the same time the Wick well resumed with the same horizon as the objective. Results indicate that the Sundance sand is productive over a larger area than the Dakota and that Moffat Dome may exceed past records.

ONLY OSAGE LEASES ARE TO BE OFFERED

WASHINGTON, D. C., Apr. 27.—Secretary Wilbur, of the Department of the Interior, has issued an order looking to the execution of the President's oil conservation policy as applied to Indian lands. Its provisions follow:

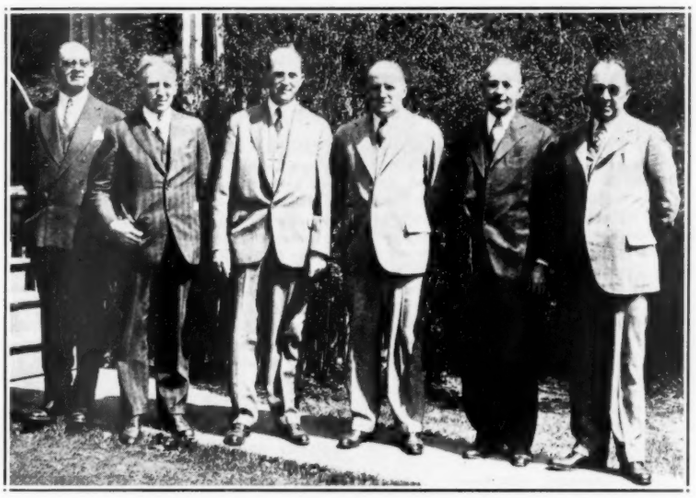
"As mandatorily required by the act of March 2, 1929, 25,000 acres, but no more, of Osage lands in Oklahoma will be offered for lease annually.

"Permits issued and outstanding under the act of March 3, 1927, for lands within Executive Order Indian Reservations will be considered and disposed of in accordance with departmental Order No. 338, dated March 20, 1929.

"No additional offerings for lease of tribal lands within the Shoshone or Wind River Reservation, Wyoming, under the act of August 21, 1916, the Crow Reservation in Montana under the act of June 4, 1920, or on any other Indian reservation except the Osage as hereinabove provided, will be made except where loss to the Indians is likely to occur by drainage through wells on adjacent lands in private ownership, when the matter will be specially considered on the strength of the facts in each instance and appropriate instructions given.

"The right of individual allottees and their heirs to lease for oil and gas purposes lands allotted in severalty under acts of Congress will be recognized, subject to the approval of the Secretary of the Interior in each case."

AT THE N.P.A. MEETING, CAMBRIDGE SPRINGS, PA.



Left to right—R. A. Wotowitch, Henry L. Doherty Co., New York; P. S. Tarbox, Independent Refining Co., Oil City; E. M. Lyons, president of the association; Fayette B. Dow, general counsel; O. P. Keeney, Keency Oil Co., New York; N. H. Weber, Pure Oil Co.

DR. HEILAND EXPLAINS GEOPHYSICAL METHODS

"Geophysical Methods of Prospecting, Principles and Recent Successes," by Dr. C. A. Heiland, professor of geophysics at the Colorado School of Mines, Golden, Colo., describes various methods of geophysical prospecting and the degree of success that has attended their use.

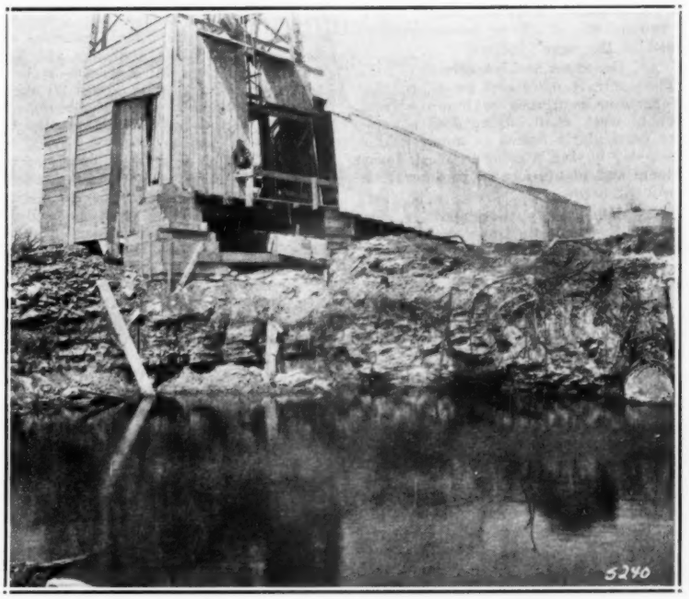
Maps show areas where geophysical prospecting has been done in the United States and what methods were used. Tables show the results of the work done. There is a map also of the Gulf Coast giving information regarding the salt domes located in this area with and without the aid of geophysics. In each case the successful method has been indicated and it is shown whether or not the dome is productive.

Doctor Heiland emphasizes the possibilities of geophysical methods for locating structures favorable for the accumulation of petroleum, but he also points out their limitations. He classifies the several methods used under the following heads: (1) Gravity methods, (2) magnetic methods, (3) radioactive methods, (4) seismic method and (5) electrical methods.

Under gravity methods Doctor Heiland explains the general principles of the pendulum apparatus and the torsion balance. In the like manner, he deals with the successes of geophysical prospecting with the magnetometer, seismograph and various electrical apparatus.

The book contains 64 illustrations and a complete index. It is published by the Colorado School of Mines.

ONE WAY TO START A LAKE IS TO HAVE A BLOWOUT



Here is part of the lake formed in the crater which resulted from a gas blowout in the Carter Oil Co.'s No. 1 Jim Walker well in the South Little River area of Oklahoma. The blowout began December 11, 1928, as the crew was preparing to standardize and complete the well in the Wilcox. Two days later gas, evidently following crevices between rocks, broke through the surface at various points, some of it issuing 100 feet from the well.

One especially violent eruption on a hillside about 80 feet from the derrick tore the big hole shown in part in the accompanying picture. Great rocks were ripped out and the sides of the hole continued to crumble until part of its edge was within a few yards of the derrick.

It was estimated that 75,000,000 feet of gas poured daily from this crater in addition to that breaking through at other points and that coming from between the 8¼-inch and the 12½-inch casing. The gas was sealed off with cement and efforts now are being made to complete the well as an oil producer in the Wilcox.

Salt water from the well, along with heavy rains, filled the crater left in the hillside until it presented the appearance shown in the picture. Not much for scenic beauty maybe, but it goes to show how gas emerging from the earth the wrong way can rearrange the landscape.

RIO GRANDE EXPANSION PLAN AT LOS ANGELES

LOS ANGELES, Calif., Apr. 27.—More than $2,000,000 will be expended by the Rio Grande Oil Co. for a marine loading station and storage tank farm on Slip 2 at Los Angeles harbor, it was announced yesterday by the Los Angeles officials of the company. Work is now under way for construction of a 900-foot loading wharf. Included in the real estate holding of the company along the water front are 14 acres, upon which will rise the tank farm and marine loading facilities. There will be 11 steel tanks, 7 of which will be unusually large, with the remainder for storage of light oils. Especially designed pumping machinery will give the plant a loading capacity of 18,000 bbls. an hour of crude oil and 15,000 bbls. of gasoline, kerosene or Diesel. High pressure pumps will handle oil brought in by tankers from Elwood to the two refineries, one at Vinevale and one at Signal Hill.

Capt. M. M. Walk is acting marine superintendent at the new plant. For 8 years he was port captain for Struthers & Barry, and for more than a year served in the same capacity for the Shipping Board here. In that time Captain Walk has supervised the loading of several hundred oil cargoes aboard tankers under his direction. At Elwood the Rio Grande has a pipe line 4,400 feet into the ocean and from a flexible hose, tankers lift their cargoes while at anchor. In December one tanker load was brought here. In March there were 11 and for April 14 loads are scheduled to arrive here to augment production from the company's fields in this area. With the increased movement of oil to this port it was intimated yesterday that the company, possibly, would purchase one or two tankers as the nucleus of a fleet of oil carriers.

DOMESTIC GRADES OF GASOLINE ADVANCE

(Continued from Page 28)

lon depending on the grade. Higher prices on neutral oils of 180 or better are predicted in the near future.

Gasolines and Naphthas

The contract movement on U. S. Motor gasoline continues to improve from week to week. Spot buying does not appear particularly active as much of this day-to-day buying is going to West Texas refiners and plants located in other Mid-Continent areas.

The high gravity movement is confined to the domestic trade except for a few shipments still being made on export contracts. Prices on these higher gravities cover a wide range. The 60-62 400 grade is moving to trade at a range of 7¾ to 8¾ cents. The 64-66 365 sold on Monday from 8⅛ to 8⅝ cents.

There is considerable speculation as to the May market. Most of the trade feel that the domestic gasoline market will continue to go higher with an advance in crude prices offered as a probable development pointing to higher prices. Some May business for U. S. Motor gasoline has been closed on a basis of 7¾ cents. Group 3. Most of the sellers, however, insist that they would not consider May business under 8 cents.

Kerosene

As kerosene prices continue to decline with practically no spot business some of the trade are now questioning the soundness of the rapid advance made in late March and early April. It has developed that these high prices cost Oklahoma and other Mid-Continent refiners considerable business and the price reaction may more than offset the temporary price advantage of a few weeks ago.

Certain refiners in the East and Middle West did not advance their prices as rapidly as Oklahoma refiners and they obtained some business which ordinarily goes to Oklahoma refiners.

There also was considerable resistance in the consuming trade and several Middle Western jobbers stated that their April business was disappointing and less than in previous years.

The 41-43 water white grade was freely available at 6⅛ and 6¼ cents on Tuesday with a few sales at 6 cents reported. May business was offered under 6 cents. The same grade was available from North Texas refiners at an eighth to a quarter cent under the prevailing Oklahoma market.

Fuel Oils and Gas Oils

There were no important price changes reported in the Oklahoma market during the week. A majority of the Oklahoma refiners are not directly concerned with the spot market in these products for the reason they have no material to offer. Their railroad contracts and their cracking units take their entire output.

The trend in cracking has been to obtain the maximum yield of gasoline and this means a coke or low gravity residuum which is consumed as plant fuel. There is still a good demand for gas oil or high gravity straightrun fuel oil suitable for cracking. One refiner is reported to have offered 3 cents for 32-36 gas oil cracking stock over May. Dark gas oil sold as low as 2⅜ cents.

Natural Gasolines

Sellers on Tuesday were maintaining a price of 7¾ cents for Grades A and AA natural gasoline, 7½ cents for B and BB, and 7⅜ cents for C. Buying was not active in any of the grades. Purchases by large refiners in the Gulf Coast area were not as heavy as expected the latter part of April and this resulted in some material being run to storage. Buyers up to Tuesday had not been active for May shipments.

Wax

Prices on wax are nominal for there is practically no movement out of Oklahoma. Export buyers constantly lower their offers and the domestic buying is slow.

NEW REFINERY AT ARUBA 50 PER CENT COMPLETED

(Continued from Page 138)

being produced from below the surface of the lake is pumped to shore tankage from which it is loaded into specially designed shallow draft tank steamers at two points in the lake, LaSalina and Lagunillas. The Lago Oil & Transport Co., Ltd., now has a fleet of about 20 shallow draft tankers in service carrying oil from the stations in Lake Maracaibo to the island of Aruba.

"The island of Aruba is a possession of the Holland government lying in north latitude 12-25, longitude west 70, and is approximately 20 miles from the nearest point of the mainland of Venezuela. The island is about 4 miles wide and 20 miles long and lies in a northwest-southeast direction. The Pan American Petroleum Corp. and the Lago Oil & Transport Co., Ltd., have a location at the extreme southeast point of the island totaling approximately 2,000 acres of land on which the refinery and other terminal facilities are being constructed. Immediately adjacent to this site the Lago Oil & Transport Co. has developed a completely protected harbor which is devoted exclusively to the business of this company. The harbor, while somewhat small as compared with the usual harbor engaging in world trade, is entirely adequate for the needs of this company's business and has been known to accommodate as many as 20 ships at one time.

"After the crude oil is refined at Aruba the finished products are transported to the world's markets by the ocean tank steamer fleet of the Pan American Petroleum & Transport Co.

"The refinery under consideration at Aruba is both a topping and cracking plant. The amount of gasoline existing naturally in Venezuelan crude is considerably below the amount ordinarily existing in crude oils such as are produced in the Mid-Continent and Texas fields of the United States, but because of the equipment for cracking which is being installed at Aruba the amount of gasoline produced in the refinery will be materially increased above the amount natural to the crude oil.

"The crude produced in the Lake Maracaibo district is in several respects distinctly different from the usual crude oils found in the oil fields of the United States. The Venezuelan crude is an asphaltic base crude, high in sulphur content, low in gasoline and kerosene content and considerably heavier in gravity and more viscous than most of the crude oils produced in the United States.

Refinery Design

"Because the Aruba refinery was designed to handle this particular crude it has been possible for the refinery technical staff and engineers to take advantage of the most modern scientific principles as applied to this particular crude oil. Whereas most refinery engineers in designing refineries have been obliged to so design their equipment that it can handle a large variety of crudes from various and unknown sources, in this instance it has been possible to design a plant of more than ordinary efficiency to meet the requirements of one particular source of crude supply.

"In so doing it has been possible to minimize the difficulties of removing sulphur and avoiding other undesirable characteristics of Venezuelan crude but at the same time retain all of the advantage of the high antiknock properties characteristic of Venezuelan crude. For this reason the Aruba refinery will be able to produce a gasoline of highest commercial quality at a minimum cost. Dr. W. W. Holland is resident manager of the Aruba refinery. Doctor Holland was formerly associated with the Standard Oil Co. of Indiana for many years and until recently was general superintendent of the Standard Oil Co. of Indiana refinery at Wood River, Ill."

BRADFORD PRODUCING CO. BUYS BIG ACREAGE

BRADFORD, Pa., Apr. 27.—Acquisition of 423 acres of fee and leasehold property from the Mayrock Oil Co. of Olean, 180 acres of fee from Fred Tapp and Frank Stephan of Olean, and 40 acres of fee from Charles J. Mitchell of Duke Center, has been completed by the Bradford Producing Co., Inc., a Pennsylvania corporation, recently formed for the purpose of acquiring and developing Bradford Field flood properties. The Mayrock Oil Co. and the Tapp and Stephan tracts are located in the Meeks Creek district near Eldred and the Mitchell property at Tiptop, in the Duke Center area.

The activities of this company should prove of interest by reason of its program for the extensive and scientific development of the above properties and others now under consideration, and also in that the Tide Water Oil Co. has a substantial interest in this company and is apparently offsetting its recent sale of properties in the Burning Well and Kanesholm area. The properties and others to be purchased will be intensively developed under Sloan & Zook management and will give the new company a substantial production and holdings in the Bradford area.

The officers of the new company are: W. J. Sloan, president; R. T. Zook, treasurer, and C. T. Rickerson, secretary. The directorate consists of six members: Messrs. Sloan and Zook, two representatives of the Tide Water Oil Co. and two representatives of prominent Pittsburgh bankers. The Tide Water representatives are M. P. Williams of New York, president of Associated Producers Co., and G. J. Hanks, vice president and general manager of the Tide-Water Pipe Co., Ltd.

It is understood this transaction does not affect the identity of operation of the properties now owned by Sloan & Zook, or those of the Associated Producers Co.

BUYS STATIONS

CHICAGO, Apr. 27.—A. T. Locke, a prominent Chicago distributor, has purchased the Pennsylvania Oil Co., Mendota, Ill. The company operates 1 bulk and 12 outlets in the vicinity of the bulk plant. Mr. Locke will continue the business.

OIL IN RIO GRANDE DO SUL

Strong indications of the existence of petroleum have been recently reported from Sao Gabriel, Rio Grande do Sul. A high percentage of oil in bituminous schist is said to have been found in geological conditions similar to those in Java. Analyses are said to have been satisfactory. Many reports of oil indications have been made in Brazil, but no test wells so far have found crude in commercial quantities.

OIL SHARE MARKET SHOWS STRONG TONE

(Continued from Page 145)

compared with $44,953,217; inventories, $161,199,290, against $156,733,295. In the statement for 1927 the company showed government securities amounting to $3,003,182, an item which was not shown for last year. Assets totaled $695,385,776, compared with $678,088,775 in 1927.

Total current liabilities amounted to $42,376,965, against $41,430,112 in 1927. Net working capital at the end of the year totaled $185,959,802, showing a ratio of current assets to current liabilities of about 5 to 1. Surplus for the year was $12,064,938, compared with a deficit of $15,776,202 in the previous year. Dividends paid to stockholders in 1928 totaled $27,580,289, compared with $27,191,090 in 1927. The profit and loss surplus as of December 31 was $100,571,647, against $86,758,712 at the end of the previous year. This gain is shown by premiums on capital stock issued in 1928 totaling $1,747,996 and earned surplus for the year of $12,064,938.

Texas Pacific

Texas Pacific Coal & Oil Co. reports for quarter ended March 31, 1929, profit of $428,142 after expenses and charges, but before depreciation and depletion, comparing with $394,080 in first quarter of 1928. Outstanding stock amounts to 844,804 shares of $10 par.

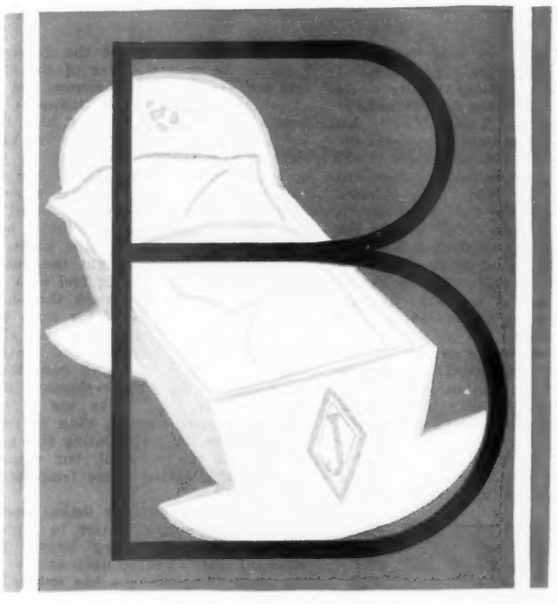
Southern Pipe Line

Southern Pipe Line Co. announced that it will be paid $955,056 by the Manufacturers Light & Heat Co. for the lines recently sold. Southern officials state that this sum, together with $50,000 received for sale of small part of lines, will make $10 a share available for stockholders without sale of any securities.

OIL BONDS ON THE NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange, Kennedy Bldg, Tulsa, Okla.

					— For week ended Apr. 26—			
	Company—	Date	Pct.	Int.	Sales	High	Low	Close
11,603,000	American Nat. Gas. Co.	Oct. 1942	6⅛	A&O	3,000	80	78¾	80
3,000,000	Beacon Oil Co.	Nov. 1936	6	M&N	4,800	112⅛	111½	111½
18,900,000	Cities Service deb.	Jan. 1966	6	M&N	No sales.			
15,000,000	Cities Serv. refunding deb...	Jan. 1966	5	M&S	16,500	88	87⅛	87½
24,843,700	Cities Service Gas Co.	May 1942	5½	M&N	No sales.			
12,000,000	Cities Service Gas P. L. Co..	Jan. 1943	6	J&J	4,900	95½	94¾	94¾
12,000,000	Continental Oil Co.	Nov. 1937	5½	M&N	1,200	96	95½	95½
3,000,000	Dixie Gulf Gas Co. A	Sept. 1937	6½	M&S	7,800	80⅛	79½	80
18,000,000	Empire Oil & Ref. Co.	Apr. 1942	5½	A&O	4,800	90⅛	89⅝	90½
3,877,100	Galena Signal Oil Co.	Apr. 1930	7	A&O	No sales.			
30,904,000	Gulf Oil of Pa.	Dec. 1937	5	J&D	7,800	101¼	100¾	101¼
12,000,000	Gulf Oil of Pa. debs.	Feb. 1947	5	F&A	9,400	101	100¾	100⅝
4,000,000	Houston Gulf Gas	Apr. 1943	6	A&O	3,800	86⅞	85⅛	86
4,000,000	Houston Gulf Gas	Apr. 1943	6½	A&O	3,800	87⅛	85⅛	87⅛
6,339,000	Independent Oil & Gas	Mar. 1939	6	M&S	No sales.			
15,000,000	Lone Star Gas Co.	May 1942	6	M&N	3,200	98⅛	98⅛	98⅛
11,650,000	Richfield Oil Co.	Sept. 1941	6	M&S				
1,427,000	Richfield Oil Co.	Jan. 1931	5½	J&D	2,600	100⅜	100	100½
9,733,000	Sun Oil Co.	1939	5½	M&S	500	101	100½	100½
4,000,000	Transcontinental Oil Co.	Apr. 1930	7	A&O	No sales.			
2,500,000	Warner-Quinlan Oil Co. ...	1942	6	A&O	No sales.			



BORN

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Design New Type of Refinery Still

Need for Constant Improvement in Oil-Heating Equipment. New Arrangement of the Heating Surface Outlined

By L. de Florez*

The refining of petroleum has always been primarily dependent on the agency of heat for its basic processes. From the earliest days of the industry, when refining consisted of merely separating the constituents of crude oil by distillation, to the present day, when it includes countless auxiliary operations, it has not changed in this respect. Methods and apparatus for the application of heat to oil constitute the essential features of modern refinery practice. The importance of continued improvement in the field of utilization of fuel requires no better illustration than the fact that approximately 40 per cent of the total refining costs is expended for fuel, the major part of which is applied directly to processing.

A review of the development of stills in recent years will reveal distinctly the growing recognition of the necessity for economy as well as reliability and safety. The principal results of this influence are evidenced in lower installation costs, made possible by legitimate increase in the rating of heating surfaces; in lower operating costs derived from actually burning fuel with less excess air; and in the general reduction in the ratio of "oil under heat" to "capacity attained" by utilizing equipment to a fuller extent.

A comparatively few years ago, the heating and distillation of oil were accomplished in shell stills consisting merely of a cylindrical tank erected in a brick setting and fired from below with a single pass to the stack. For a long time these stills were built and operated in accordance with their assumed ratings, curiously enough without questioning their actual capacity. A still of about 40 feet by 14 feet, with about 2,000 square feet of condensing surface, was rated at a capacity of 1,000 bbls. of charge per day and run accordingly. It was considered unwise to attempt to increase its duty due to the danger of burning the bottoms or blowing the safety valve by crowding the vapor line and condenser. We know, now, that stills of this size, if provided with adequate vapor lines and condensers, can be run at double this rating and that, when connected in a continuous battery and provided with suitable auxiliaries, their capacity can be further increased. It has been reported recently that stills of approximately this size, equipped for internal circulation, are being run at a rate of about 5,000 bbls. per day.

Rate of Heating Oil

The former tendency was to consider that the heating of oil could be performed only at a slow rate; while, in reality, it is a fact that heating surfaces, whether in shell stills or in tubular heaters, were simply underrated, due to a lack of knowledge.

The difficulties which have confronted the still designer have not been due entirely to the intrinsic fact that oil would not absorb the heat as readily as water, but they were due as well to the necessity of overcoming established customs of years standing. It took many years to arrive at the realization that, although the transfer of heat to oil is more difficult than its transfer to water, nevertheless it is sufficiently analogous to permit the application of many of the fundamentals of steam practice to the field of oil distillation.

The characteristics of oil differ chiefly from those of water in that the boiling range of oil extends over 600 degrees Fahrenheit or 700 degrees Fahrenheit, while its latent heat is about 10 times less than that of water. Oil, moreover, is not as good a conductor of heat and, if subjected to excessive local heating, it tends to decompose and throw down coke or carbon. To compensate for these pecularities a high degree of agitation and uniform heating are requisite to successful operation, and it is the combination of these factors with fuel economy and low unit costs which presents the real problem.

The use of the tubular oil heater has developed rapidly in recent years largely due to the fact that adequate turbulence can be attained in these tubes by high velocity and that the surface can be disposed at will to permit comparatively even distribution of heat. The tubular oil heater further renders possible the construction of large units with a high degree of safety.

The Tubular Heater

In its simplest form the tubular heater consists of a furnace containing a pipe coil through which the oil is pumped continuously. In the early designs this furnace took the shape of a box-like setting with the pipe coil located in the upper part, the space below forming the combustion chamber, fired in most cases by an oil or gas burner.

As in the case of the shell still, we become used to rating the pipe still surface at a capacity per square foot of surface which would give no trouble; and for years stills of this type were used without realizing how much surface was virtually useless.

A study of this type of still revealed the fact that about two-thirds of the work of the whole still was actually accomplished by the small section of the coil in view of the fire. From this condition, it became evident that the capacity of the still was held back since any endeavor to utilize the subsequent coils more fully by raising the fire would result in burning tubes in the already fully loaded section. This difficulty led to the belief that radiant heat from the fire was undesirable and should be avoided, which in turn led to subsequent designs where the tubes were shielded from the glare of the fire. Naturally, it was found that unless the heat of the flame was tempered by the admission of excess air or dissipated through the walls of the furnace as radiation, the shields that were made to protect the tubes would eventually become radiant and defeat their purpose.

Endeavors were made to obviate this by recirculating flue gases to reduce the temperature of combustion, also by employing the equivalent of a water screen, or a number of pipes set on the roof of the combustion chamber to absorb some of the radiant heat with cold oil. Still later came the realization that radiant heat might be useful after all if it could be controlled. This concept has led to the design of the more modern pipe stills where the heating elements are generally divided into two sections, the first receiving heat mainly by radiation while the second is heated by direct contact with the flowing stream of products of combustion.

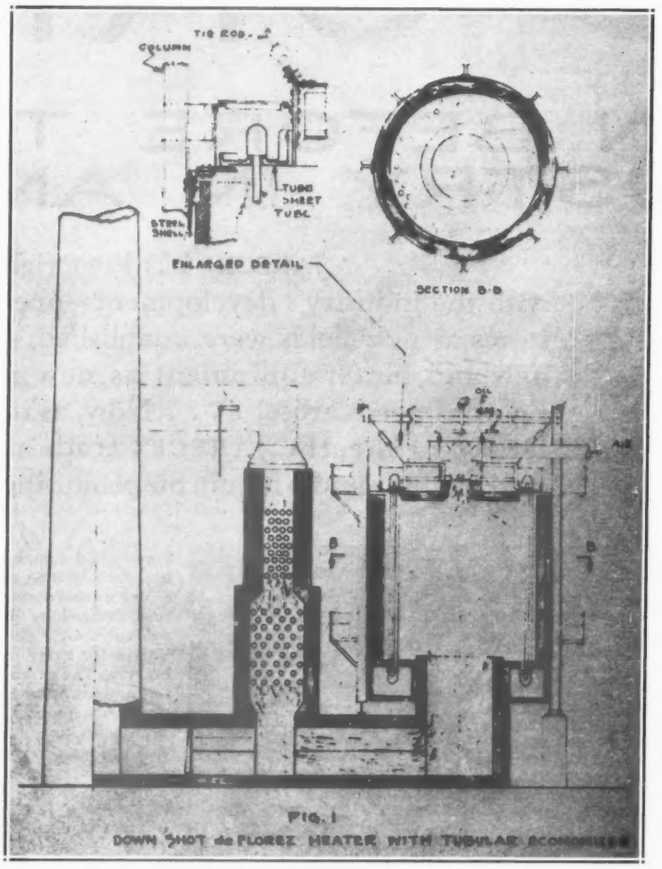


FIG. 1
DOWN SHOT de FLOREZ HEATER WITH TUBULAR ECONOMIZER

Transfer of Heat

An arrangement of this character tends to distribute the heat load over a larger percentage of the surface and permits a higher average rating with consequent reduction in the total heating surface required for a given duty.

The rate of transfer of heat by radiation is a function of the difference between the fourth power of the absolute temperatures of the source, and the absorbing surface, which indicates the possibility of obtaining very high heat input when desired. On the other hand, the most efficient combustion of fuel occurs when it is burned with the correct quantity of air which is attended by high flame temperatures. Based on these facts, it seems evident that a heater which would combine the ability to utilize to the fullest extent the radiant heat produced by burning fuel with theoretical air would approach the ideal.

It has been my belief for some time past that a heater embodying such characteristics could be built and that, in any case, it was far more desirable to expend effort on the development of a design which could make use of high combustion temperatures than to resort to apparatus for recirculating flue gases or rely on the wasteful, but common, practice of reducing flame temperatures with excess air.

These deductions seem logical enough, yet it is no simple matter to preserve heating surface receiving intense heat when oil must be relied upon as the cooling agent. The problem has resolved itself into approaching the desired condition without sacrifice of safety.

Still Design

It is obviously beyond the scope of this paper to enter into a detailed discussion of the still design in general or the relative values of various settings or methods of combustion. The brief review of the art given herewith has been made merely with the idea of illustrating the purpose of some of the features in the design I have been asked to describe.

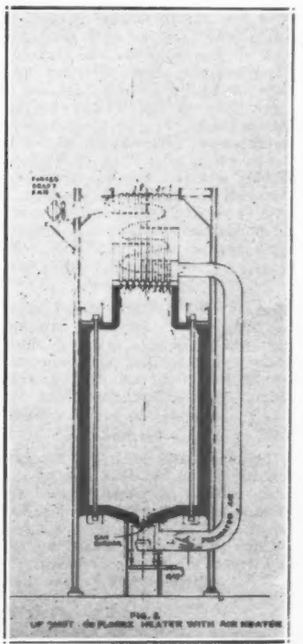


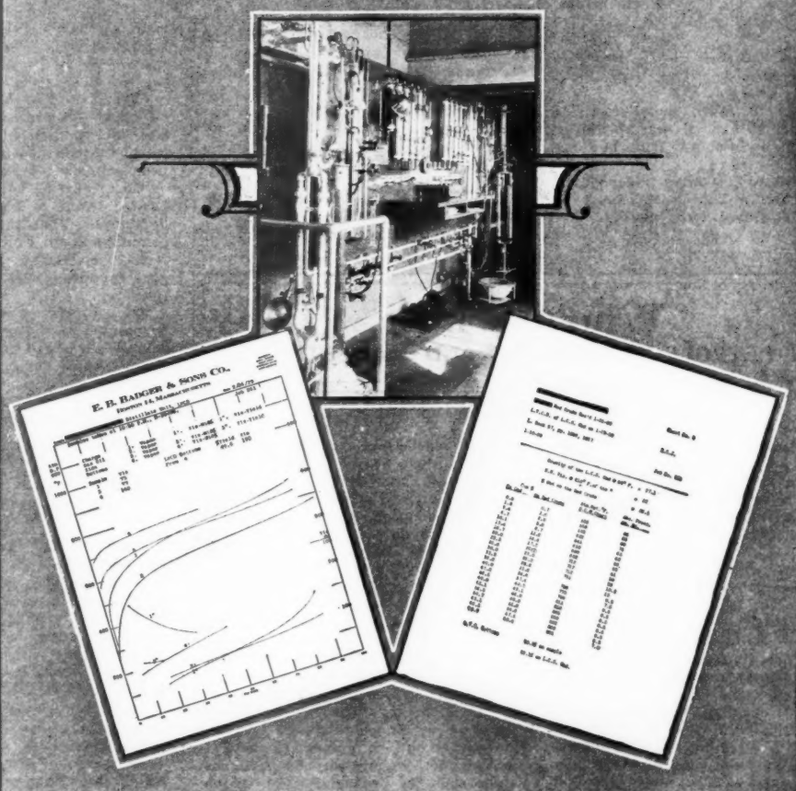
FIG. 2
UP SHOT de FLOREZ HEATER WITH AIR HEATER

Perhaps the most radical departure found in the new design has been brought about by the elimination of the conventional brick-lined combustion space, to permit the absorption of heat to begin immediately after its generation. This has led to a new arrangement of the heating surface where the flame from the burner is exposed directly to what might be considered an excess of heating surface. With this arrangement the

(Continued on Page 162)

*Paper presented at A.S.M.E. meeting, New York.

RESEARCH AND EXPERIMENTAL WORK



The following Companies are some of those who have purchased BADGER Equipment:

Magnolia Petroleum Co., of Texas
Shell Petroleum Corp.
Craig Oil Co.
Freedom Oil Works Co.
Texas Pacific Coal & Oil Co.
Gulf Refining Co.
Skelly Oil Co.
Phillips Petroleum Co.
Pierce Petroleum Corp.
Tide Water Oil Co.
Anglo-Persian Oil Co., Ltd.
Empire Refineries, Inc.
Marland Oil Co.
Vacuum Oil Co.
Associated Oil Co.
Barnsdall Corp.
Humble Oil & Refining Co.
Tidal Refining Co.
Standard Oil Co. of N. J.
General Petroleum Corp.
Beacon Oil Company
Lubrite Refining Co.
Pennzoil Company
Shell Company California
New Orleans Refining Co.
Embenton Refining Co.
Independent Refining Co.
Richfield Oil Co.
The Texas Co.
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WE have made complete examinations of hundreds of samples, comprising substantially every variety of crude, analyzing for yields, viscosities, etc., and have voluminous records of all such work.

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Of Interest to Sales Departments

COMPARISON OF GASOLINES IN VOLATILITY RANGE

By Neil MacCoull*

Unfortunately, gasoline has no single boiling point to measure its volatility such as found for water, benzol and other straight chemical compounds. For instance, if you heat a flask of water the temperature will rise until it gets to 212 degrees Fahrenheit, and then boiling will start. The temperature will stay at 212 until all the water has boiled off. Thus we speak of the boiling point of water as 212 degrees. If you repeat this experiment with gasoline you will find that it acts very differently, for the temperature will continue to rise after the gasoline begins to boil, and will be some 250 to 350 degrees higher as the last of it boils off than the temperature where boiling first started. It is customary to measure the volatility of gasoline by recording the temperature when boiling starts, and also when each 10 per cent of the volume has been distilled. This means that to record gasoline volatility you must use a row of about 11 figures, which is of course very awkward.

Recently some comprehensive work has been done in interpreting these figures in a practical way by Doctor Bridgeman of the Bureau of Standards for the Co-operative Fuel Research Committee. He found that for applying volatility data to engine performance, it is necessary to know only two of the distillation temperatures, those for the 10 and 90 per cent points. You can determine the relative merits of different gasolines in regard to ease of starting by comparison of the 10 per cent points—and in regard to engine performance after warming up, by comparing the 90 per cent points.

Without going into this matter too deeply let me show how such a calculation would be made, assuming that your interest lay in finding the necessary manifold temperatures for dry mixtures of several gasolines. The 90 per cent distillation of the average motor gasoline is about 380 degrees Fahrenheit. This is converted into absolute temperature by adding 460 to it. Then dividing by 1.38 will give the absolute temperatures at which this gasoline can be dry if a very rich mixture of air to gasoline is used, such as eight to one. If a very lean mixture such as 16 to 1 were used the devisor should be 1.42. These simple computations show that the absolute temperature for a lean dry mixture would be 608 degrees—and converting back to Fahrenheit temperature by subtracting 460, we get 148 degrees as the required manifold temperature.

Comparison of Fuels

For your interest let me add two more such figures for comparison, one for domestic aviation gasoline and the other for fighting grade aviation gasoline. These gasolines according to government specifications can have 90 per cent points as high as 311 degrees Fahrenheit and 257 degrees Fahrenheit which would require manifold temperatures of only 83 degrees Fahrenheit and 45 degrees Fahrenheit respectively for the 16 to 1 mixture ratio. In reality the manifold temperatures should be a little higher, because there is so little time available for evaporating the drops of gasoline which leave the carburetor.

There is one more point I want to bring out under this subject of volatility. In order to be sure to supply enough heat to the manifold to completely vaporize even the heaviest gasolines, engineers have sometimes gone too far, with the result that when a comparatively volatile gasoline is used, it may boil in the float chamber of the carburetor, and stall the

(Continued on Page 169)

*Part of paper presented at meeting of Metropolitan division of Society of Automotive Engineers.

SUGGEST RULES FOR SAFE CLEANING AND HANDLING OF DRUMS AND BARRELS

"The safety of those working on the premises and of the property itself depends upon conditions allowed in the various departments," J. C. Bernd of the Sinclair Refining Co., East Chicago, Ind., told the Petroleum section of the seventh annual Midwest Safety Conference of the National Safety Council.

Mr. Bernd, who spoke on the subject, "Cleaning, Filling and Handling Drums and Barrels," explained many practices that are unsafe, stressing the necessity of cleanliness and proper equipment in handling drums and barrels. He recommended the following practices to reduce accidents:

"1. All departments should be clean and orderly—floors kept free from oil and water pools.

"2. Sufficient closed metal cans or boxes for rubbish and oil rags should be provided. Prompt removal from building is necessary.

"3. All recesses, whether under stairs, walks, benches, or in closets, must be kept clean and free from clothing, old scraps, etc.

"4. Lockers in dressing rooms should be cleaned occasionally and oily clothes should not be kept lying around or hanging on walls of any building overnight. Inspection of lockers periodically brings good results.

"5. Oily rags and in fact all material should be kept off of radiators or steam lines. The habit of throwing rags into dark corners should not be tolerated.

"6. Electric drop lights and extensions need careful inspection and the general equipment should be inspected monthly.

"7. Gasoline and paint in open containers should be kept in a separate building so that main building is not endangered in case of fire.

"8. Fire doors should be kept in good repair and unobstructed so that they may function freely. They must be kept closed at night. Repairs, when needed, shoudl not be held up.

"9. Keep bottoms of shafts and pits clean.

"10. Watch-clock stations and fire equipment should be easily accessible at all times.

"11. Fire extinguishers, hose nozzles and other fire-fighting apparatus require periodical inspections and report can be made to someone in authority.

"12. Fire drills produce results in time of need.

"13. Exits should be properly marked and unobstructed.

"14. Washing of clothes should be absolutely prohibited on premises.

"15. Vapor-proof globes should be considered as standard equipment.

"16. Lights should be controlled by switches on outside of building and easily accessible.

"17. Electric light switches can be independent of all other electrical equipment so that practically all electric current to barrel house can be shut off by the outside switches after working hours, thereby eliminating a great fire hazard.

"18. Switches for motors or other electrical apparatus should be on outer wall of building, but emergency shut-offs can be located in convenient positions near points of operation.

"19. Starting boxes for motors can be located inside of buildings with the understanding that they must be in good condition at all times.

"20. Extension wires should be in good condition, well insulated and off the floor.

"21. Pipe lines resting on floor should be painted an orange or bright red occasionally; this will prevent men from stepping on them and calls attention to tripping hazards.

"22. Toe boards at staircase to stop material and posts at upper center point

(Continued on Page 169)

Who's Who
IN PETROLEUM REFINING AND MARKETING

By C. O. Willson

The Standard Oil Co. (New Jersey) the largest of the Standard units and formerly the parent company is easily the largest refining organization in United States. It is also the most important American company in export markets.

From the refinery angle in United States the company with subsidiary companies has about 14 per cent of the total crude oil capacity. Its refinery operations are well founded as is evidenced by the fact that its refineries have 30 per cent of the total cracking capacity in United States.

The parent company has refineries located at Baltimore, Md.; Bayonne, N. J.; Jersey City, N.J.; Linden, N. J.; Parkersburg, W. Va.; and Charleston, W. Va. These refineries have a total crude oil capacity of 231,000 bbls. daily and cracking capacity of 258,350 bbls. daily.

The subsidiaries operating refineries in United States are the Humble Oil & Refining Co., Beacon Oil Co. and the Standard Oil Co. of Louisiana. The Humble has six refineries in Texas with a crude oil capacity of 137,000 bbls. daily and a cracking capacity of 140,000 bbls. daily. The Beacon refinery located at Everett, Mass., has a crude oil capacity of 25,000 bbls. daily and a cracking capacity of 20,000 bbls. daily. The Standard of Louisiana refinery located at Baton Rouge, La., has a crude oil capacity of 80,000 bbls. daily and a cracking capacity of 40,000 bbls. daily. The New Jersey Standard owns what is known as the Tube and Tank process and this equipment is installed in all of the larger refineries.

From these and other subsidiary companies the New Jersey company has an adequate crude oil supply for these refineries coming from domestic and foreign fields.

Market Position

The company, despite this large refining capacity, does not market in as wide a territory in United States as some companies with fewer plants. Following the dissolution in 1911 the company confined its direct marketing of gasoline and kerosene in United States to the States of New Jersey, Maryland, Virginia, West Virginia, North Carolina and South Carolina. The company is still the dominant marketing factor in these states, operating under the name of the parent company.

With the acquisition of subsidiary organizations the company has gradually expanded its marketing facilities in several other states. The Humble company is one of the major distributors of Texas. The Standard Oil Co. of Louisiana operates directly in Louisiana, Tennessee and part of Arkansas. The Beacon Oil Co. control of which was acquired last year has market outlets in New England. In addition the company through other companies sells its products direct to consumers in other states.

In the southeast through a contract arrangement with the Standard Oil Co. of Kentucky the Standard Oil Co. of Louisiana furnishes part of the gasoline distributed by the Kentucky company in several states. Last year the parent company organized the Standard Oil Co. of Pennsylvania and the company has expanded its market facilities in that State.

The policy of several of the Standard companies in recent years has been to extend their marketing territory without regard to the operations of other Standard units. It seems reasonable to conclude that the New Jersey company in one form or another will continue its expansion policy until national distribution is obtained.

The foregoing briefly summarizes the New Jersey Standard's position in United States. Through numerous subsidiary companies its position is equally as important in foreign markets. The company controls the Imperial Oil, Ltd., the largest refiner and marketer in Canada. The company has several refineries in South America, Cuba, England and its market outlets are world wide. A substantial part of the refinery output from plants in United States is sold through export channels.

TIDE-WATER CONDUCTS DISTRIBUTORS SCHOOL

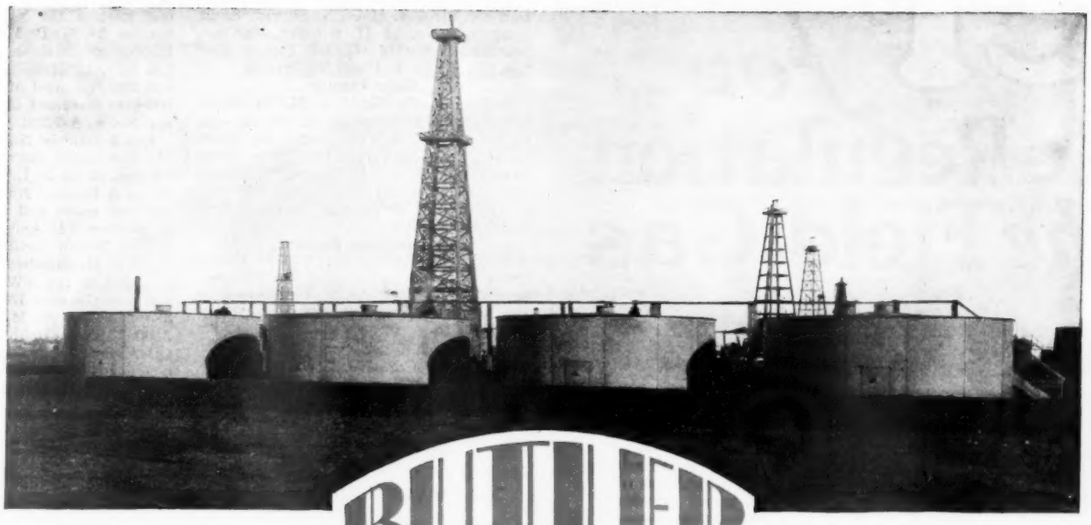
NEW YORK, Apr. 27.—A group of 30 distributors of Tide Water Oil Co. products recently visited the Tide Water refinery for a week's course of instruction in the refining end of the business, and the proper methods of marketing "Tydol" and "Veedol." They came from points in New Jersey, New York, Pennsylvania, West Virginia, and Ohio.

The first three days' training consisted of talks on certain phases of refinery operations, after which the men were taken to witness the operation to which the talk referred. The latter half of the week was devoted to consideration of subjects which were particularly interesting to the distributors, such as bulk plant construction and operation, trucking costs, credits, accounting, territorial analysis, and modern merchandising methods.

"This training of distributors is an innovation in the oil business which should favorably affect our trade throughout the territories served by the distributors," says an announcement by the company. "The program was made possible by the co-operation of the entire refinery, together with men from the sales division, who are in close contact with the distributors. It is interesting to note that these men value such training so highly that they have come to Bayonne at considerable expense in order to take advantage of this opportunity."

GOVERNMENT SELLS TANKERS

NEW YORK, Apr. 27.—The United States Shipping Board has announced that it will sell the five tank steamers remaining of the fleet which at one time numbered 143. The tankers, representing in the aggregate 47,641 deadweight tons, are the "Dilworth," "Baldbutte," "Baldhill," "Meton" and the "Hagan."



BUTLER BOLTED TANKS

STEEL BUTLER PRODUCTS

NEW oil fields, like new gold fields, come in for front page display in the newspapers. The play is brief—the public is given the romance of it—the actualities are for oil field men.

Closely following news of most every discovery come pictures, like the one here, of Butler Bolted Tanks quickly set on the scene to preserve the "black gold" at the end of the rainbow.

Even in the excitement of a discovery, oil field men know where to turn for fast field tank service and bolted tanks that assemble on location without a hitch, because of precision punching and forming — and bolted tanks which can be depended upon in the emergency and through long, every day service.

Bolted tanks up to 25,000 barrels capacity and welded tanks made to any specifications are described in the catalog, "Butler Oil Field Tanks". If you do not have it, we will gladly send it.

Wichita Field Emerich Lease Bu-Vi-Bar Company

These reliable dealers are ready to render speedy Butler Bolted Tank service:

Drane-Humphrey Co., at San Angelo, Big Lake, Pyote and Mc Camey, Texas, and Roswell, New Mexico.

Drane Tank Co., at Tulsa, Holdenville, Seminole, Hallett and Shawnee, Oklahoma; El Dorado, Madison, Wichita and Valley Center, Kansas.

Keyes-Butler Tank Co., of Casper and Cody, Wyoming.

Thomas Moran, at Oil City, Shreveport and Georgetown, Lousiana.

M. A. Trimmer, at Blackwell and Lovell, Oklahoma.

Muskegon Boiler Works, Muskegon, Michigan.

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CF Regulators have had the control of Natural Gas as their most important mission almost from the first major production and distribution enterprises. Natural Gas has had most of its development under CF Regulation. . . . CF Regulators have Natural Gas to thank for much of the progress made in more reliable, more accurate and safer service from producers' wells to consumers' homes.
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NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

Skelly Oil Co.'s No. 13 H. Schafer, 330 feet north and east of the SW cor. Section 88, Block 4, H.&G.N. Survey. Same company's No. 14 H. Schafer, 330 feet south and west of the NE cor. of Section 68, Block 4, H.&G.N. Survey.

Gray County

Dodson-Shell's No. 1 J. M. Saunders, 330 feet north and west of the SE cor. of the SW of the NW, Section 40, Block 3, H.&G.N. Survey. The Texas Company's No. 7 J. B. Bowers, 990 feet north and 330 feet east of the SW cor. of the E half of Section 89, Block B-2, H.&G.N. Survey.

Hutchinson County

Holmes and others' No. 1 J. L. Moore, 330 feet north and east of the SW cor. of the N half of the east 80 acres of the SE of Section 125, Block 4, H.&G. N. Survey.

Wheeler County

Gibson Oil Co.'s No. 7 W. E. Bentley, 330 feet north and west of the SE cor. of the NW of the SE of Section 42, Block 24, H.&G.N. Survey. Lone Star Gas Co.'s No. 1 J. A. Ridinger, at the C of the SW of the NW of Section 65, Block 17, H.&G.N. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Continental Oil Co.-Perkins & Cullum's No. 1 L. F. Wilson-B, 150 feet north and 200 feet west of the SE cor. of the N half of the SE of the SW of Section 114, A.T.N.C.L. Survey. J. T. Harrell and others' No. 1 E. T. Brown, 150 feet north and 1,800 feet east of the SW cor. of the E. T. Brown 320-acre tract out of Section 2, S.P.R.R. Survey, A-921. D. O. Johnson and others' No. 7 L. F. Wilson-A, 450 feet north and 150 feet east of the SW cor. of Lot 26, Wilson's Geraldine Subdivision.

Petroleum Production Co. and others' No. 1 W. M. Coleman, 1,916 feet south and 750 feet east of the NW cor. of Section 81, A.T.N.C.L. Survey. Shappell Oil Co.'s No. 45 J. L. Jackson, 830 feet north and 1,350 feet west of the SE cor. of Section 5, Denton County School Land, League 3, A-117. Same company's No. 46 J. L. Jackson, 530 feet north and 750 feet west of the SE cor. of Section 5, Denton County School Land, League 3, A-117. The Texas Company and others' No. 1 American Refining Co. Properties, 150 feet south and 450 feet east of the NW cor. of the E half of Block 69, Kemp Wichita Valley Land.

J. Turner and others' No. 5 J. D. Lyles, 150 feet south and east of the NW cor. of the SW of the NE of Section 7, Hooper & Wade Survey, A-234. United Producers and The Texas Company's No. 1 J. H. Turbeville, 150 feet south and west of the SE cor. of the William Sellers Survey No. 110, A-384, and located in Section 124, Club Ranch Subdivision.

Underwood Drilling Co. and others' No. 4 T. B. Wilson, 1,890 feet south and 150 feet west of the NE cor. of Section 12, Block 3, H.&T.C. Survey. A. J. Wolf & Son's No. 1 R. E. Huff, 1,250 feet south and 150 feet east of the NW cor. of the R. E. Huff 160-acre tract out of the Robert Neil Survey, A-331. C. U. Beasley's No. 3 Abercrombie & Taylor, 150 feet north and west of the SE cor. of the NW of Section 41, Club Ranch Subdivision. L. G. Bradstreet Co.'s No. 1 S. M. J. Benson, 150 feet north and west of the SE cor. of the west 40 acres of the north 120 acres of the south 240 acres of Section 1,808, T.E.&L. Survey. Same company's No. 2 W. C. Owens, 150 feet south and east of the NW cor. of Section 26, Thomas McCoy Survey, A-643.

L. T. Burns' No. 1 Mrs. M. A. DeMoss, 450 feet north and 200 feet east of the SW cor. of the west 75 acres of the south 175 acres of the Mrs. M. A. DeMoss 480-acre tract out of the B.B.B.&C. Survey No. 2, A-1,219. L. T. Burns and others' No. 1 W. H. Portwood, 10 feet north and 150 feet east of the SW cor. of Section 2,411, T.E.&L. Survey. Continental Oil Co.'s No. 1 J. T. Richardson-A, 150 feet south and 450 feet west of the NE cor. of Section 11, Thomas McCoy Survey, A-269. Freeman & Grebin's No. 1 W. M. Easterling, 150 feet south and 570 feet west of the NE cor. of the NE of Section 20, G. P. Meade Subdivision, L. M. Pasture. Humble Oil & Refining Co.'s No. 3 G. B. Hamilton-A, 461 feet north and 600 feet west of the SE cor. of their 100-acre lease out of the B.B.B.&C. Survey No. 6, A-1,266.

Lea & Daniels' No. 7 Mrs. G. Williams, 450 feet north and 550 feet west of the SE cor. of the J. I. Hand Survey, A-182. Marts & Benens' No. 1 W. J. McMurtry, 150 feet north and east of the SW cor of Section 12, Andrew Nunley Survey, A-320. Moran Drilling Co. and others' No. 1 J. M. Bloodworth-B, 150 feet south and east of the NW cor. of the west 70 acres of the east 135 acres of the north 285 acres of the M. Cartwright Survey, A-60. Moran Drilling and Independent Oil & Gas Co.'s No. 2 S. L. Scott, 150 feet north and 2,035 feet west of the NE cor. of the M. Cartwright Survey, A-60, and located in the B.S.&F. Survey No. 2, A-1,205.

Panhandle Refining Co.'s No. 1 L. Snider, Jr., 150 feet south and 600 feet east of the NW cor. of the west 40 acres of the L. Snider, Jr., 106.66-acre tract out of the H. Pearce Survey, A-340. The Texas Company's No. 1 J. T. Richardson-C, 725 feet south and 150 feet west of the NE cor. of Lot 17, J. Scott Survey, A-374. The Texas Company and Long's No. 1 J. D. Lasater estate, 911 feet north and 150 feet east of the SW cor. of the west 80 acres of the south 120 acres of the north 238 acres of the J. D. Lasater estate 318-acre tract out of the M. Pickens Survey, A-341.

Brown County

Ed Curry's No. 4 W. H. G. Chambers, 150 feet south and 1,050 feet east of the NW cor. of the W. H. G. Chambers tract out of the G. Logan Survey No. 147. H. C. Kessler and others' No. 1 J. B. Bryson, 2,764 feet south and 150 feet east of the NW cor. of the S. Jones Survey No. 282. Sinclair Oil & Gas Co.'s No. 1 J. A. Long, 150 feet north and west of the SE cor. of Section 37, H.T.&B. Survey. H. A. Beasley and others' No. 1 A. B. Dabney, 900 feet south and 600 feet west of the NW cor. of the A. B. Dabney 450-acre tract out of the heirs William H. Wharton Survey No. 318.

Callahan County

D. Beams' No. 2 C. B. Snyder, 550 feet north and 150 feet east of the SW cor. of the NW of the NW of Section 140, B.B.B.&C. Survey. Bradstreet & Holden's No. 1 S. T. Swafford, 150 feet north and 1,150 feet west of the SE cor. of the S. T. Swafford tract out of the G. M. Vigal Survey No. 798. A. Breman and others' No. 1 A. G. Hobbs, 150 feet north and 3,550 feet west of the SE cor. of the heirs B. Larkin Survey. Duffy & Ewmo Oil Co.'s No. 1 J. P. Graves, 1,980 feet north and 220 feet east of the SW cor. of Section 90, Block 13, T.&P. Survey. Gunn Production Co.'s No. 1 A. W. Orrel, 750 feet south and 150 feet east of the NW cor. of Section 97, Comal County School Land. Moutray Oil Co.'s No. 2 E. L. Finley-C, 150 feet south and east of the NW cor. of the SE of the NE of Section 75, Bayland Orphan Asylum Land. C. A. Dedmond and others' No. 1 H. Moore, 250 feet north and 150 feet west of the SE cor. of the SW of the NE of Section 9, Block 6, S.P.R.R. Survey.

Clay County

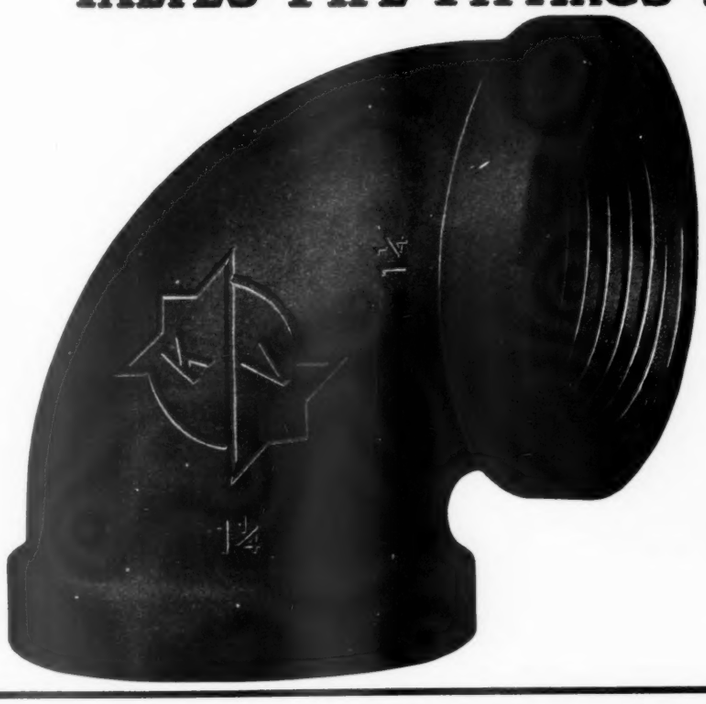
L. L. Bain's No. 4 A. Culbertson, 231 feet north and 150 feet west of the SE cor. of the south 40 acres of the A. Culbertson 200-acre tract out of the K. McKenzie Survey, A-328. L. L. Bain's No. 5 A. Culbertson, 621 feet north and 150 feet west of the SE cor. of the south 40 acres of the A. Culbertson 200-acre tract out of K. McKenzie Survey, A-328.

Coleman County

S. J. Taylor and others' No. 2 Young Brothers, 1,820 feet north and 1,545 feet west of the SE cor. of the B. F. Greer

KENNEDY

VALVES-PIPE FITTINGS-FIRE HYDRANTS



PIPE fitters find that Kennedy Malleable Iron Pipe Fittings save time and labor. They go on the pipe easily, screw up easily, are easy to make tight, and they stay tight because of the care and accuracy with which they are threaded.

And there are many additional advantages in standardizing on Kennedy Fittings. You will find them of uniformly good, malleable metal, free from defects of any nature, and amply strong without being unnecessarily heavy. They are easy to get in any quantity from your supply house, and the big Kennedy line includes a type for every purpose.

Try Kennedy Fittings on your next pipe-fitting job. The Kennedy catalog describes and lists them fully and we will mail you copy for reference if you will send us your name and address and mention your dealer.

THE KENNEDY VALVE MFG. CO. ELMIRA, N.Y.

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Stoll Oil Company Trailer

"IN THE POWER AGE WHY USE OLD METHODS"

KW 70—3000 LBS. CAPACITY, $110.00
KW 72—3000 LBS. CAPACITY, 140.00
KW 75—5000 LBS. CAPACITY, 210.00

The Stoll Oil Refining Company in the past have been using Heavy Duty trucks with oil tanks for transporting their products but are now replacing this with lighter truck and trailer equipment. The truck and trailer above shown, which is the regular Kingham model C-3 trailer, will handle a 1000 gallon tank very satisfactorily. This type trailer is made in various sizes and can also be furnished in the Transverse spring type trailers.

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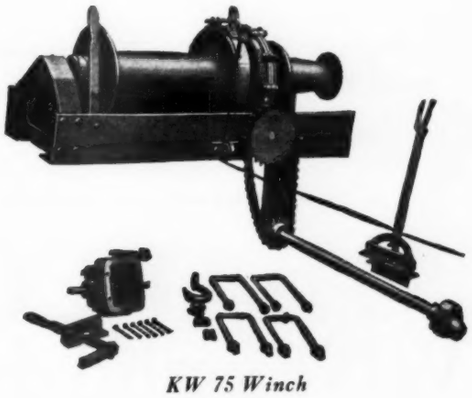
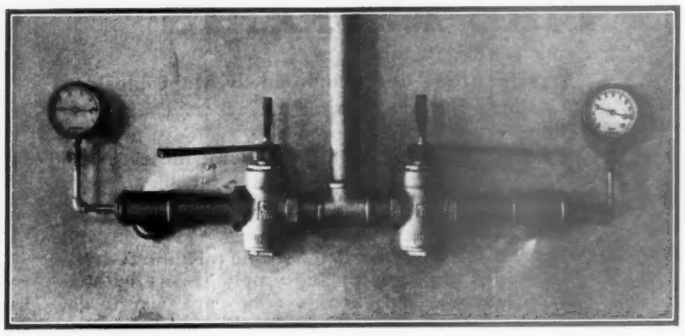


KW 75 Winch

Gas Pressures, low and high,



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Barco Plug Valves are especially adapted for accurate control. They never stick and a quarter turn will give full opening or full closing.

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Valves and Joints

O&GJ 5-2 Gray

Survey No. 192. E. L. Chapman and others' No. 1 C. F. Fuller, Sr., 200 feet south and west of the NE cor. of the west 82 acres of Section 12, North Subdivision, M. Martinez Survey No. 751. Same company's No. 3 C. F. Fuller, Jr., 1,850 feet south and 200 feet west of the NE cor. of Section 12, North Subdivision, M. Martinez Survey No. 751. Mattocks & Midsun Oil Corp.'s No. 1 J. H. Hutchings, 200 feet north and west of the SE cor. of the north 80 acres of the south 200 acres of the E half of Section 11, Block 1, G.H.&H. Survey. Prairie Oil & Gas Co.'s No. 2 A. J. and C. H. Reaves, 150 feet north and 1,050 feet east of the SW cor. of the H. Rhodes Survey No. 631. H. Samuels' No. 1 E. W. Gill, 4,465 feet south and 1,163 feet west of the NE cor. of the W. J. Cannon Survey No. 69.

Cooke County

Benson Brothers' No. 1 H. Y. Gibson, 200 feet north and 150 feet west of the SE cor. of the north 75 acres of the E. A. Clubb Survey, A-279. Humble Oil & Refining Co.'s No. 2 R. B. Poteet, 1,980 feet south and 450 feet west of the NE cor. of the J. L. Stephens Survey, A-1,001. Kewanee Oil & Gas Co.'s No. 15 R. J. Timmis-A, 800 feet south and 484 feet west of the NE cor. of their 80-acre lease "A" out of the E.T.R.R. Survey No. 5, A-363. Shell Petroleum Corp.'s No. 6 H. L. Dennis, 150 feet north and 750 feet east of the SW cor. of their 47-acre lease out of the T. J. Hutchinson Survey, A-484. Same company's No. 7 H. L. Dennis, 450 feet north and east of the SW cor. of their 47-acre lease out of the T. J. Hutchinson Survey, A-484. The Texas Company's No. 8 H. L. Dennis, 150 feet south and 750 feet east of the NW cor. of their 52-acre lease out of the T. J. Hutchinson Survey, A-484.

Howard County

Magnolia Petroleum Co.'s No. 2 H. Hyman, 1,220 feet north and 1,320 feet west of the SE cor. of Section 88, Block 29, W.&N.W.R.R. Survey. Marland Production Co.'s No. 1 H. R. Clay, Lease 1, 1,520 feet north and 210 feet east of the SW cor. of Section 127, Block 29, W.&N. W.R.R. Survey.

Jack County

Brazos River Gas Co.'s No. 1 W. L. Keyser, 225 feet south and 969 feet east of the NW cor. of the west 50 acres of the W. L. Keyser 117.5-acre tract out of the Thomas Toby Survey, A-849. F. H. E. Oil Co.'s No. 2 Mrs. M. Leffel, 330 feet south and west of the NE cor. of the south 40 acres of the Mrs. M. Leffel 80-acre tract out of the Isaac Hughson Survey, A-256. Same company's No. 3 Mrs. M. Leffel, 330 feet south and east of the NW cor. of the south 40 acres of the Mrs. M. Leffel 80-acre tract out of the Isaac Hughson Survey, A-256. L. C. Harper's No. 2 Mrs. M. Leffel, 330 feet north and east of the SW cor. of the north 40 acres of the Mrs. M. Leffel 80-acre tract out of the Isaac Hughson Survey, A-256. Panhandle Refining Co.'s No. 3 J. T. O. Smith, 330 feet south and west of the NE cor. of the J. T. O. Smith 169.5-acre tract out of the Isaac Hughson Survey, A-256.

Prairie Oil & Gas Co.'s No. 3 Mary A. Bryson, 330 feet north and east of the SW cor. of the M. A. Bryson 273-acre tract out of the Isaac Hughson Survey, A-256. Same company's No. 4 Mary A. Bryson, 1,134 feet south and 330 feet east of the NW cor. of the M. A. Bryson 273-acre tract out of the Isaac Hughson Survey, A-256. Same company's No. 5 Mary A. Bryson, 1,894 feet south and 330 feet east of the NW cor. of the M. A. Bryson 273-acre tract out of the Isaac Hughson Survey, A-256. T. G. Shaw's No. 1 Oliver Loving, 417 feet south and 470 feet west of NE cor. of the south 58 acres of the west 128 acres of Section 2,744, T.E.&L. Survey. The Texas Company's No. 1 J. M. Daugherty, 330 feet north and west of the SE cor. of the east 80 acres of the J. M. Daugherty 150-acre tract out of the Isaac Hughson Survey, A-256.

McCulloch County

H. F. White's No. 1 R. White, 1,500 feet north and 1,300 feet east of the SW cor. of Section 65, H.&T.C. Survey.

Montague County

Bridwell Oil Co. and Continental Oil Co.'s No. 1 D. A. Lauderback, 1,166 feet north and 300 feet east of the SW cor. of the D. A. Lauderback 60-acre tract out of the F. Robertson Survey, A-620.

Pecos County

Phillips Petroleum Co.'s No. 1 I. M. Ramsey, 990 feet south and 1,980 feet west of the NE cor. of Section 17, Block 194, G.C.&S.F. Talbot's No. 1 D. K. Unsicker, 150 feet southwest of the northeast line and 150 feet northwest of the southeast line of Section 25, Block 10, H.&G.N. Survey.

Presidio County

L. C. Brite's No. 3 L. C. Brite, 2,500 feet north and 2,300 feet west of the SE cor. of Section 51, Block 12, G.H.&S.A. Survey.

Wichita County

Golding-Cochran & Mayfield's No. 1 J. L. and T. J. Waggoner, 150 feet south and 750 feet west of the NE cor. of Lot 24, H. George Survey, A-454. Stump & Heydrick's No. 1 B. N. Ferguson, 150 feet south and east of the NW cor. of Lot 11, J. T. Lewis Survey, A-462. The Texas Company's No. 4 J. L. and T. J. Waggoner-B, 150 feet north and west of the SE cor. of the G.C.&S.F. Survey No. 1, A-782. Ven-Mex Oil Co.'s No. 16 J. L. and T. J. Waggoner, 150 feet north and 200 feet west of the SE cor. of Lot 9, Sec. 2, G.C.&S.F. Survey, A-772.

Wilbarger County

Consolidated Oil Co.'s No. 1 W. T. Waggoner-N, 150 feet south and 1,170 feet east of the NW cor. of Section 1, Block 13, H.&T.C. Survey. Same company's No. 1 W. T. Waggoner-O, 150 feet north and west of the SE cor. of the N half of the NW of Section 40, M.E.P.&P. Survey. Derby Oil Co.'s No. 3 W. T. Waggoner-C, 515 feet south and 205 feet east of the NW cor. of the NE of the SE of Section 43, M.E.P.&P. Survey. Dixie Oil Co.'s No. 1 W. T. Waggoner, 1,115 feet south and west of the NE cor. of Section 4, Block 5, H.&T.C. Survey. Easter Oil Co.'s No. 4 W. T. Waggoner-A, 613 feet south and 205 feet west of the NE cor. of Section 26, Block 4, H.&T.C. Survey. Same company's No. 3 W. T. Waggoner-C, 150 feet north and west of the SE cor. of the NW of the SW of Section 25, Block 4, H.&T.C. Survey.

Empire Gas & Fuel Co.'s No. 4 W. T. Waggoner-A, 100 feet north and 550 feet west of the SE cor. of the NW of Section 32, Block 4, H.&T.C. Survey. Same company's No. 4 W. T. Waggoner-C, 612 feet south and 195 feet east of the NW cor. of Section 25, Block 4, H.&T.C. Survey. Same company's No. 5 W. T. Waggoner-C, 1,433 feet south and 205 feet east of the NW cor. of Section 25, Block 4, H.&T.C. Survey. Fain-McGaha Oil Corp.'s No. 10 W. T. Waggoner-L, 205 feet north and 655 feet west of the SE cor. of their 200-acre lease "L" out of Section 31, Block 4, H.&T.C. Survey. Same Company's No. 11 W. T. Waggoner-L, 150 feet south and 1,050 feet west of the NE cor. of their 200-acre lease "L" out of Section 31, Block 4, H.&T.C. Survey. Golding-Cochran and others' No. 4 W. T. Waggoner-H, 450 feet north and 150 feet east of the SW cor. of the east 30 acres of the NE of the SE of Section 32, Block 4, H.&T.C. Survey. Gray Back Development Co.'s No. 1 W. T. Waggoner, 450 feet north and 150 feet west of the SE cor. of the S half of the N half of the west 320 acres of Section 10, Block 4, H.&T.C. Survey. C. F. Kolp's No. 6 W. T. Waggoner-G, 150 feet north and east of the SW cor. of the NE of the NE of Section 18, Block 4, H.&T.C. Survey. Phillips Petroleum Co.'s No. 26 W. T. Waggoner-T, 330 feet south and west of the NE cor. of the SW of the SW of Section 45, Block 4, H.&T.C. Survey. Richfield Oil Co.'s No. 1 W. T. Waggoner-C, 150 feet south and east of the NW cor. of the SW of the NE of Section 38, Block 3, H.&T.C. Survey. Simpson-Fell Oil Co.'s No. 1 W. T. Waggoner, 1,237 feet south and 150 feet west of the NE cor. of Section 19, B.S.&F. Survey.

Staley-Wynne & Co.'s No. 3 W. T. Waggoner-B, 660 feet south and 205 feet east of the NW cor. of the NE of the SW of Section 25, Block 4, H.&T.C. Survey. Same company's No. 3 W. T. Waggoner-G, 1,280 feet south and 153 feet

A LEAN and naked coolie passes coal on the quay at Shanghai; outside your office window a laborer slowly struggles on a casting pile. Both out-of-date — both equally inefficient when, at lower cost, modern equipment will do the work of ten. Think it over!

Material handling is by far the most vital operation in manufacturing. More often, it is the determining factor in production costs. Material handling methods may be speeded up with Chisholm-Moore equipment; time, money and unproductive labor saved.

To this end a C-M expert is at your service. He will show you how surprising handling economies may be effected; not vague, uncertain improvements but practical, proven methods that appeal to the hard-boiled engineer. A note on your business letterhead will bring detailed information about this C-M expert's services.

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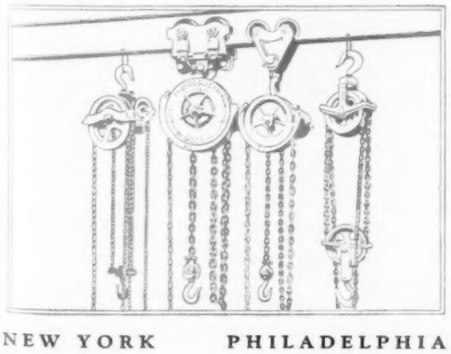
Chisholm-Moore Chain Hoists are particularly adapted to the requirements of the oil fields. There is a C-M representative right in your territory who is as familiar with your problem as he is with our product. Write for descriptive literature and the name of this C-M expert.



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CHAIN HOISTS — CRANES, TROLLEYS, CAPSTANS, CHARGERS — ELECTRIC HOISTS

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THE QUICK ACTION OF THE "FAVORITE" WRENCH IS ASTONISHING

The FAVORITE reversible ratchet WRENCH

REDUCES THE COST OF NUT TURNING

Strange as it may seem, nut turning has not increased in efficiency as other mechanical operations have, by the elimination of useless motions, but to a very large extent nuts are turned to-day with practically the same type of wrench as was used a century ago.

The open end wrench wastes time when it is removed from the nut at every part turn, to say nothing of the number of times it slips off the nut.

The "Favorite" Wrench avoids all lost motion, as it works on a quick straight ahead ratchet movement, and the socket form of head is not removed from the nut until operation is completed.

ON BREAKDOWN JOBS, where nuts have to be turned quickly the "FAVORITE" wrench is invaluable.

Accidents are avoided as the socket form of the "FAVORITE" wrench does not slip off the nut, as does the open end type.

BUILT STRONG FOR ROUGH USAGE

Send for full particulars.

GREENE, TWEED & CO.

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109 Duane St. New York

west of the NE cor. of the W half of the SE of Section 32, Block 4, H.&T.C. Survey. Same company's No. 4 W. T. Waggoner-G, 905 feet south and 153 feet west of the NE cor. of the W half of the SE of Section 32, Block 4, H.&T.C. Survey. Same company's No. 1 W. T. Waggoner-N, 450 feet south and 150 feet west of the NE cor. of the NW of the SW of Section 40, M.E.P.&P. Survey. Same company's No. 1 W. T. Waggoner-R, 205 feet south and west of the NE cor. of the SE of the NE of Section 26, Block 4, H.&T.C. Survey. Stidham & Thrasher's No. 1 W. T. Waggoner-B, 150 feet south and east of the NW cor. of the SW of the NE of Section 9, Block 4, H.&T.C. Survey. Tulsa Oil Co.'s No. 1 W. T. Waggoner, 330 feet north and west of the SE cor. of Section 6, Block 17, H.&T.C. Survey. Waggoner Refining Co.'s No. 8 W. T. Waggoner-G, 660 feet south and 150 feet west of the NE cor. of the NE of the SW of Section 24, Block 4, H.& T.C. Survey. Waggoner Refining Co.'s No. 8 W. T. Waggoner-G, 660 feet south and 150 feet west of the NE cor. of the NE of the SW of Section 24, Block 4, H.&T.C. Survey. Same company's No. 3 W. T. Waggoner-L, 830 feet north and 150 feet east of the SW cor. of the west 10 acres of the NE of the SE of Section 32, Block 4, H.&T.C. Survey. Same company's No. 4 W. T. Waggoner-L, 150 feet south and east of the NW cor. of the NE of the SE of Section 32, Block 4, H.&T.C. Survey.

Corrections

Brown County—A. H. Bowers' No. 1 Graham estate, 2,540 feet north and 1,000 feet east of the SW cor. of Section 8, Jeremiah Brown Survey No. 137. Greene Production Co.'s No. 7 A. A. Moore, 500 feet south and 1,150 feet east of the NW cor. of their lease out of the J. A. Belvin Survey, A-1,961. Douglas and others' No. 1 Graham estate, 150 feet north and 4,290 feet west of the SE cor. of the Jeremiah Brown Survey No. 137. Infield Petroleum Co.'s No. 1 Graham estate, 1,665 feet north and 835 feet west of the SE cor. of Jeremiah Brown Survey No. 137. Same company's No. 2 Graham estate, 965 feet north and 2,785 feet west of the SE cor. of Section 3, Jeremiah Brown Survey No. 137. Producers & Refiners Corp.'s No. 1 George T. Graham, 1,860 feet east and 550 feet south of the center of Jeremiah Brown Survey No. 137. E. L. Smith Oil Co.'s No. 1 Graham estate, 2,920 feet south and 500 feet west of the NE cor. of the W half of Section 7, J. Brown Survey No. 137. Same company's No. 2 Graham estate, 2,320 feet south and 1,945 feet east of the NW cor. of Section 7, J. Brown Survey No. 137.

Callahan County—Dudley Oil & Gas Co.'s No. 1 Hugh Moore, 250 feet north and 150 feet east of the SW cor. of the SE of the NE of Section 9, Block 6, S.P.R.R. Survey.

Gray County—The Texas Company's No. 6 J. B. Bowers, 330 feet north and 270 feet west of the SE cor. of the east 160 acres of Section 89, Block B-2, H.&G.N. Survey (new location).

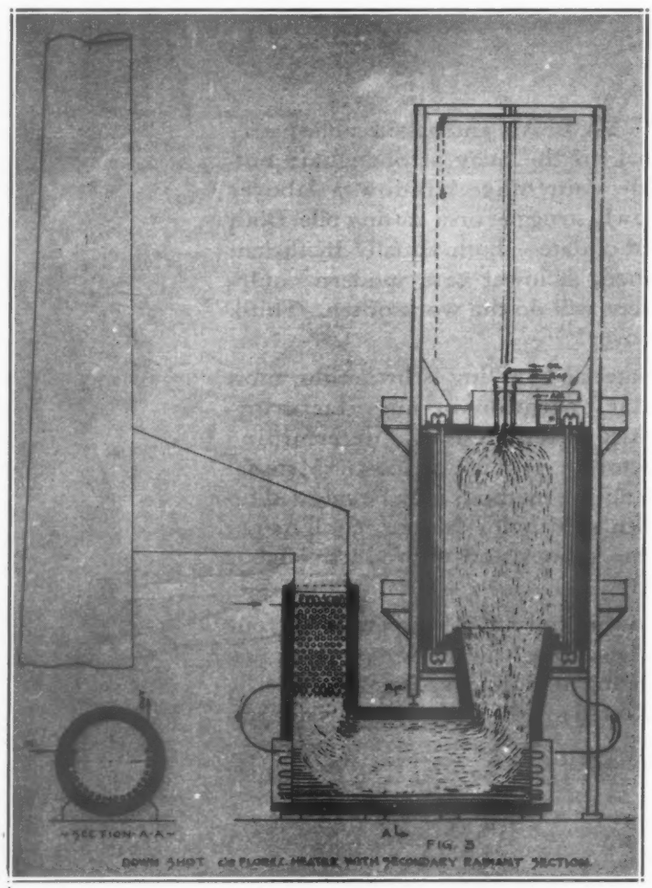
Wilbarger County—Empire Gas & Fuel Co.'s No. 8 W. T. Waggoner-B, 265 feet south and 550 feet west of the NE cor. of the SW of Section 32, Block 4, H.& T.C. Survey.

Winkler County—Southern Crude Oil Purchasing Co.'s No. 3 T. G. Hendricks T-88-R, 1,320 feet north and 1,617 feet east of the SW cor. of Section 27, Block 26, School Land.

DESIGN NEW TYPE OF REFINERY STILL

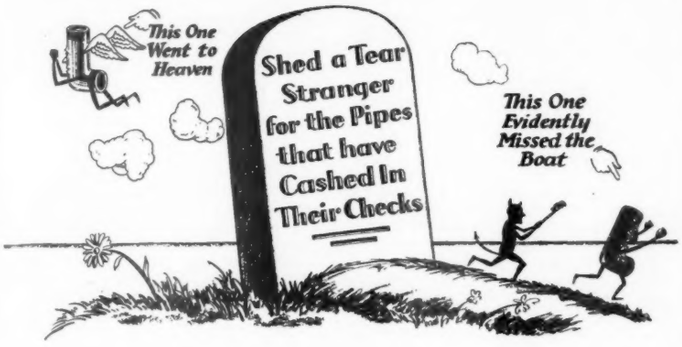
(Continued from Page 154)

flame heats the tubes by radiance and, conversely, the tubes cool the flame. Thus a balance can be struck between these two factors which results in limiting the maximum temperature to which the tubes may be subjected in service. It is thus possible to operate the heating surface under conditions known to be safe by former practice, and at the same time to burn fuel with high flame burst temperatures.



Vertical Tube Heater

In general terms, the vertical tube heater comprises what may be termed a radiant section and an economizer sec-


This One Went to Heaven
Shed a Tear Stranger for the Pipes that have Cashed In Their Checks
This One Evidently Missed the Boat

They Were A Hardy Lot

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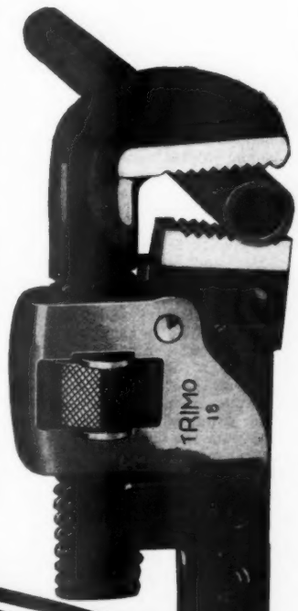

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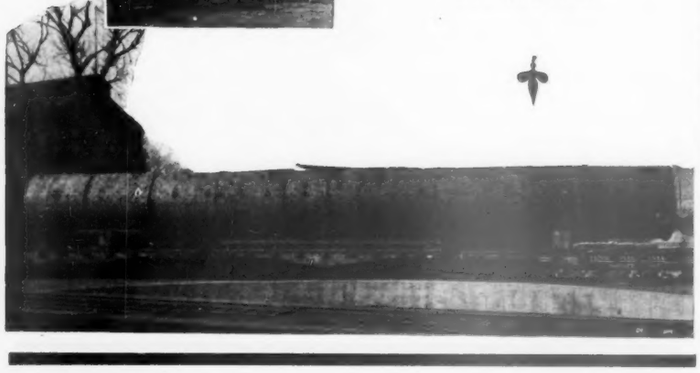

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tion. The radiant section is constructed in the form of a vertical cylindrical shell, the walls of which are lined with vertically disposed tubes which are symmetrically spaced with respect to the center of the cylinder. A burner admits fuel at one end of the vertical chamber and the products of combustion are discharged at the other end and carried to the economizer section through a suitable flue. The economizer section may consist of a more or less conventional tube still arrangement for the tubes or may, in some cases, be an air heater which would replace the tube bank.

As will be seen from the accompanying illustrations, the heater readily adapts itself to different requirements. The firing, for instance, may be effected downward or upward according to the duty intended.

Referring to Figure 1, it will be noted that this shows a downshot type with the burner placed at the top discharging the products into the combustion space below. The economizer section is disposed vertically and the horizontal flue connection between the two sections continues into the base of the stack to provide an outlet for emergency or for scavenging the setting. In operation, the flame and products of combustion travel downward in a path generally parallel to the axis of the tubes in the radiant section and upwards through the economizer and thence to the stack.

It will be noted that the vertical section is formed by a cylindrical steel shell supported on columns and provided with a lining of insulating brick and fire brick. The upper portion of the shell is provided with an angle section turned inward which supports the weight of the tube sheet and tubes. This is allowed to slide on the surface of the supporting section to compensate for expansion.

The Tube Sheet

The tube sheet itself is composed of a number of sectors, usually of cast metal, rigidly connected to an inner ring made of boiler plate, uniting them into a continuous circular shape. The tube sheet is perforated to permit the insertion of the tubes which it supports and is so designed as to be self-supporting. It will be noted that, owing to its circular form, it cannot break inwards without stressing the inner annular ring of metal which joins the casting together, at the same time it is free to move laterally as a whole. The burner or group of burners is supported at the center by radial members connected at one extremity to the tube sheet supporting ring and terminating in a smaller ring which holds the burner housing and draft box. A flat arch is suspended from the radial members and forms the top of the combustion chamber extending from the opening provided for the burner to within a few inches of the tubes themselves. The base of the chamber is provided with a circular opening of smaller diameter than the chamber connected with the flue, which provides the outlet passage for the products of combustion.

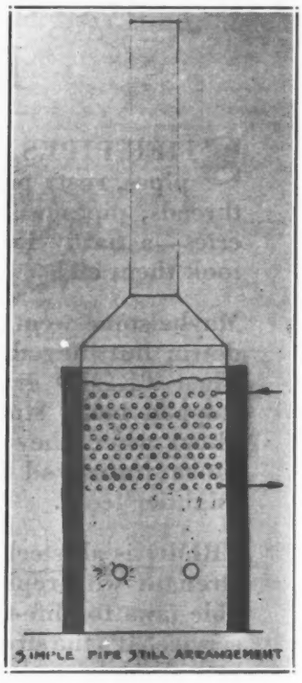
A second tube sheet in the form of an annular ring is provided at the base of the chamber with perforations corresponding to the top tube sheet. This lower tube sheet is supported by the shell on the outside also by the structure formed by the outlet flue on the inner side. In this particular design the whole of the weight of the tubes is taken by the top tube sheet, the bottom tube sheet acting merely as a support for the lining of the shell and the refractory material for its own protection. The tubes are thus permitted to expand and contract freely in a vertical direction and their weight tends to keep them straight, eliminating the tendency to sag.

Position of the Tubes

It will be noted in this arrangement that the position of the tubes is such that they are substantially out of the direct path of the products of combustion, which tend to channel through the center, at the same time they are in full view of the flame. The return bends or junction boxes connecting one tube to the other are shielded from the fire by the tube plates and housed in by side plates and removable covers which provide access for cleaning.

The burner itself is usually a combination mechanical oil and gas burner provided with forced draft. In some cases, where a single burner is not desirable, a number of jets may be placed near the center in symmetrical fashion always concentrating the flame, as far as possible, toward the center of the cylinder. Forced draft is usually provided on these burners to permit this concentration and also for the purpose of providing a positive control for the amount of air required for combustion.

The tubes are usually connected in series to form a single coil to insure positive flow of the oil, but they can be divided to provide a multiple flow, if desired. In the series heater the oil is admitted to the top of the economizer bank, passes downward progressively toward the hotter zone and from thence is



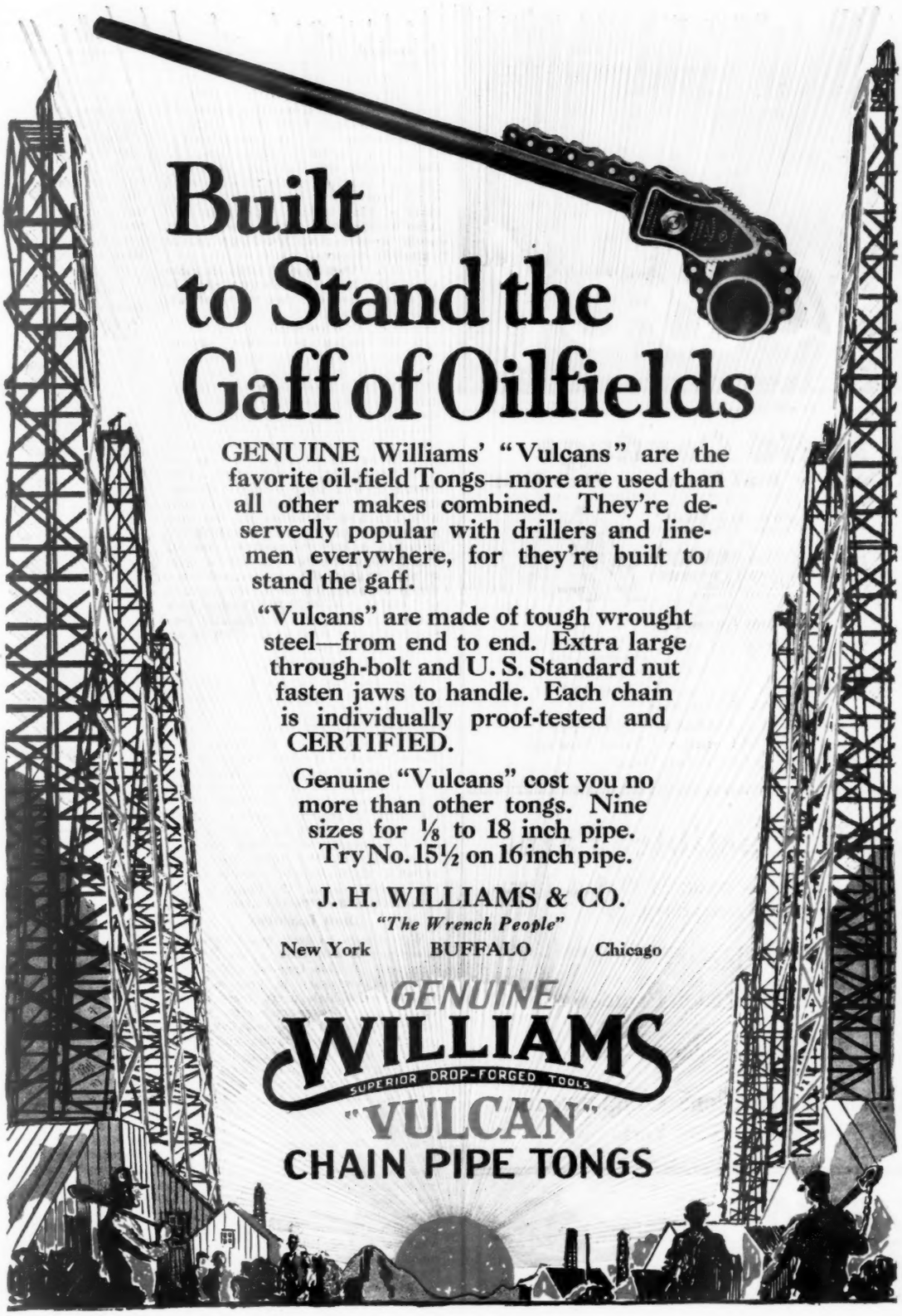
led to the inlet tube of the vertical section around the circle and out.

It will be seen from this general arrangement that all the tubes in the vertical section receive a large amount of radiant heat while, due to their symmetrical arrangement with respect to the fire, they all receive an approximately even amount of radiation. Of course, as the oil becomes heated and the temperature of the tubes increases, the hotter tubes will receive somewhat less heat than the cooler tubes which is advantageous as it relieves the heat load on the tubes which might be expected to give the most trouble. The absorption of heat in the vertical section is sufficiently great to reduce the temperature of the gases delivered to the economizer section to 1,200 degrees to 1,400 degrees Fahrenheit, a temperature at which they can be readily handled with a conventional setting.

Radiant Absorbing Surface

With the large amount of "radiant absorbing" surface in the vertical section, the products of combustion are cooled very rapidly making it possible to maintain a high heat gradient between the flame temperature and the average temperature of the gases surrounding the tubes. This condition enhances heat transfer without endangering the tubes.

Actually, the temperature at a point 10 inches to 12 inches away from the tube toward the center of the furnace will seldom exceed 1,500 degrees Fahrenheit, which appears to be a safe limit for tubes carrying oil. In existing installations the temperatures usually run materially lower than 1,500 degrees Fahrenheit and it has been found that the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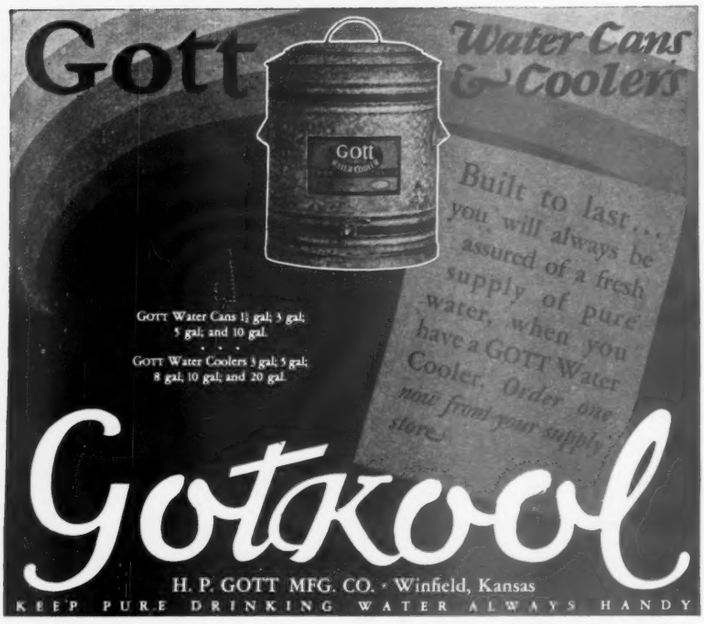
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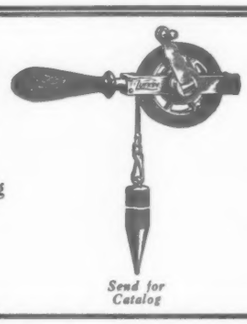

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variations in temperature in the length of the chamber are seldom over 100 degrees Fahrenheit. It is probable that the fuel is burned progressively, to some extent, which is suggested by the fact that CO2 readings are usually lower at the top of the chamber than at the bottom.

Another effect, resulting from the rapid absorption of heat, is evidenced by the reduction of the volume requirements for combustion made possible by the correspondingly rapid contraction of combustion products. In the conventional pipe still it is seldom possible to liberate more than 8,000 B.t.u. per hour per cubic foot of combustion space and it is probable that 6,000 B.t.u. would be a fairer estimate for the average setting. It has been possible to liberate from 15,000 to 16,000 B.t.u. per hour per cubic foot in a tube still of the type described and to continue to do so over long periods of time without endangering the tubes or interfering with combustion. It seems probable that this figure can be materially increased.

Doubtless these figures seem moderate when compared with boiler practice. In oil heating, however, they represent substantial progress.

Excess Air

In oil heating, where tube temperatures are usually higher than in steam practice, and where there is likely to be deterioration of the surface due to oxidation, another advantage results from operating with minimum excess air, apart from the standpoint of economy. The life of the tubes is materially increased by reducing the amount of free oxygen in the gases; and, although there always appears to be a slight oxidation at high temperatures, the benefits of running with minimum of excess air are very marked. In one particular installation, made on a high temperature cracking plant, tubes have been in service eight or nine months without substantial oxidation when running at oil temperatures of 1,050 degrees to 1,100 degrees Fahrenheit and where the outside skin temperature of the tube is materially in excess of this figure.

Brick Work

There has been, to date, very little occasion to effect repairs on brick work on furnaces built, in fact the brick work of the lining, flues and economizers showed particularly no effects of heating. Only minor troubles have been encountered in the top of the combustion chamber on the suspended arch where it was found necessary to provide rather liberally for expansion. In practice it seems desirable to operate the heater with a pressure of a few hundredths of an inch less than atmospheric at the tube sheet; this causes a slight leakage inwards at the top, thereby cooling the upper part of the structure and the top arch.

Draft Conditions

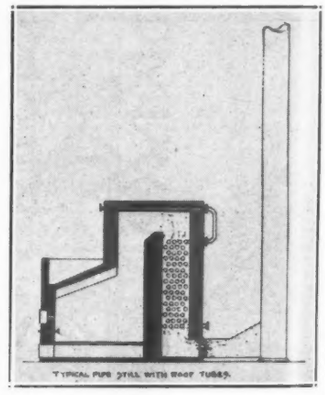
With regard to draft conditions, it is interesting to note that on the first design made of this type of still it was considered necessary to provide for a comparatively high draft intensity because of the counter-stack effect in the vertical section. In one installation the calculations for draft resulted on the choice of a stack 125 feet in height and even then some misgivings were felt as to whether there would be sufficient draft to operate the heater. Curiously enough, it was found that not only was there sufficient draft for the rating desired, but there was a considerable excess which was puzzling for a time. Observation showed, however, that with a combustion chamber, the top of which was about 40 feet off the ground, the counter-stack effect amounted to a little less than a quarter of an inch of water, whereas it had been calculated to be considerably greater. It was found that the discrepancies arose from the fact that in the original calculations the average temperature of the chamber was assumed to be 2,000 degrees Fahrenheit, whereas in actual practice the average temperature was below 1,500 degrees Fahrenheit. This, of course, accounted for the difference and, contrary to the rule, was a pleasant surprise.

It appears from experience that heaters of the downshot type can be operated without unusual provisions for draft which were thought at first to be necessary.

In order to provide adequate surface in the combustion chamber, it is usually customary to stagger the tubes to form two rows in such a way that the inner row does not shield the back row from the flame. This usually leads to a staggered arrangement which is very flexible and permits varying the surface with standardized shells and obviates the necessity of making numerous general designs for different requirements in duty. The addition of 1 foot on the diameter gives roughly 3 feet on the tube sheet which leads to economy in the large sizes. Visibility of the tubes, which is important especially in cracking, is provided by peep holes in the side of the shells and the tubes can be viewed by looking diagonally across the furnace from various points symmetrically disposed in the shell. In the larger furnace top peep holes are also provided and bottom peep holes to view the flame.

Cleaning Tubes

Access to the tubes for cleaning is provided by removable covers enclosing the top and bottom tube space. The junction boxes connecting the tubes are provided with the usual removable plugs to permit turbining the tubes in place. This operation is carried out from top to bottom and, due to the disposition of the tubes around the circumference of the combustion chamber, a large number of cleaners can be employed simultaneously if desired, without interfering with each other. With certain types of junction boxes, dirty tubes can be withdrawn by means of an overhead trolley or crane and replacement effected in re-



TYPICAL PIPE STILL WITH ROOF TUBES.

markably short time. Rapid cleaning is often important since the furnace is usually connected to a large amount of equipment which must remain idle during cleaning periods and, therefore, nonproductive.

In operation the fires are lighted in the usual way through the lighting holes provided in the burner and the forced draft is adjusted to the load required. This is done by having an accurate draft gauge on the delivery pipe of the blower. After the furnace is brought to its operating conditions, CO2 readings are taken with varying draft pressures. It is found that the draft pressures correspond fairly closely to the CO2 readings for a given amount of fuel and in practice it is customary to instruct the operators on the pressure to carry on the forced draft to correspond with the pressure carried on the fuel line with gas or oil to maintain correct proportions.

Operation of Still

It might be noted at this point that the operation of an oil still differs from that of a boiler in that it is primarily governed by the requirements of the process, the efficiency of which depends usually on the outlet temperature of the oil. The control of combustion is generally considered of secondary importance and made efficient after other conditions are satisfied. An approximate method of controlling combustion which is easily carried out and which, at the same time, permits accurate control of

the outlet temperature, is obviously the most serviceable under present conditions.

The vertical still controls with great rapidity, at the same time it appears to be unusually stable. The moderate variations of fuel required to maintain desired outlet temperatures do not seem to effect the percentage of CO_2 to any great extent and the control of the heater can be normally effected without changing the forced draft pressure. It is interesting to note that if the CO_2 falls off more load is put on the economizer and, whereas the outlet temperature of the heater may remain constant, the outlet temperature from the economizer to the vertical section may vary considerably. In this manner changes in combustion conditions may be quickly noticed on the control board of the refinery unit and corresponding corrections made. Over two-thirds of the work of the heater is done in the vertical section, the remainder in the economizer. Under service conditions an overall efficiency of 70 to 75 per cent can be readily obtained and it is possible that even better results can be secured when oil inlet temperatures are not too high.

The foregoing has described more or less in detail the design and operating characteristics of one type of heater in order to illustrate some of the principles involved. It will be realized that many modifications are possible and it may be of interest to briefly describe one or two other forms.

Upshot Heater

Figure 2 illustrates an upshot heater in which the economizer section has been replaced by an air heater, shown more or less diagrammatically above the vertical section. The purpose of the air heater is to reclaim heat from the stack gases and transfer to the air required for combustion. With preheated air it is obvious that higher combustion temperatures will be obtained and therefore more heat will be made available for transfer to the tubes by radiation. This type of heater, which is now being constructed, is of considerable interest since it carries out more fully the idea of transferring heat from a source at high initial temperatures. It will be used in connection with a process where the inlet oil temperature is about 800 degrees Fahrenheit a temperature which would render a tubular economizer section of little value.

The mechanical structure of the heater is very simple requiring little ground space and it seems probable that it will lead to considerable economy in materials. The comparatively short length of travel of the oil should permit high velocities without undue pressure drops thereby enhancing the transfer rate of heat from metal to oil and reducing the steam required for pumping—always a large item.

I may remark that it is customary to use direct acting steam pumps for hot oil service and need not point out their shortcomings from the standpoint of steam consumption.

Modification of Type

Figure 3 shows a more recent modification of the type of heater first described. The chief points of interest in this design lie in details of construction, in particular in the use of the horizontal flue to form what may be termed a secondary radiant section. The flue, as will be seen, consists of a cylindrical shell lined with refractories, the bottom half of which is screened by longitudinal tubes disposed on a semicircle. The use of this section provides for additional radiant surface, facilitates the oil connection between the outlet of the economizer to the inlet of the vertical section, and reduces the amount of foundation work required by eliminating the necessity of a mat on which to build a flue. All the loads in this design can be concentrated at desired points which will obviously simplify foundations, particularly where piling is required. This is often an important item; it seems at times as though executives of oil companies conspire to select refinery sites to test the skill of their engineers.

About a year ago I was asked to write a paper on the type of still which I have just described. At the time I felt that it was impossible for me to do so as I did not have sufficient information at hand with regard to its possibilities and performance. There are, at this date, some 25 stills of this type in the course of building, or authorized; they include many different modifications; and yet I feel that I might well have waited another year before attempting to deal with the subject. Probably in another year I will still feel the same way. Development work is never completed. My only hope is that my rather elementary discussion will have conveyed to you the need for constant improvement in oil heating equipment, and made clear the purposes which have been aimed at in a new design.

COMPARISON OF GASOLINES IN VOLATILITY RANGE

(Continued from Page 156)

engine while idling because of the excessively rich mixture which results. It is not a rare event to find gasoline in the float chambers heated to 150 or even 180 degrees Fahrenheit. This looks disastrous when compared with the distillation data of motor gasolines which show initial boiling points of 95 to 105 degrees Fahrenheit by the standard A.S.T.M. method. In this method, however, the temperatures are read from a thermometer in the vapor just above the liquid and fortunately the liquid temperature is really about 70 degrees higher which means that some cars are just on the ragged edge of good performance with good gasoline. I have driven cars in which I got the best results by deliberately picking out what would be called a "poor" gasoline on account of its high boiling point, but this was an unfortunate necessity, because, of course, starting in cold weather was made more difficult.

SUGGEST SAFE RULES FOR CLEANING DRUMS

(Continued from Page 156)

of stairs to prevent drums from rolling down are good safety kinks.

"23. Proper guarding and inspection of conveyors and barrel elevators is very important.

"The foregoing suggestions, for safe operation of a barrel house, appeared important enough to mention, but they do not include the one which seems to surpass all in making working conditions safer in a barrel house. The fact is that it does not matter what kind of material you handle, when considering reduction of accidents, but how you handle it.

"With this objective in view it may be possible to visualize a barrel house where the drums arrive in cars according to shipping specifications, a clean well kept storage yard, definite and safe passageways, drums stacked solidly with none lying around. See them move from storage by mechanical means to testing vats where they are automatically tested and marked. By dropping on conveyors, they proceed to welding shop, or through the cleaning department where the drum washing vats and steaming operations are conducted underneath hoods to carry off the steam and vapors. Then, partly filled with a caustic solution, they drop onto a rolling apparatus that raises the ends of the drums alternately and deposits them on a conveyor where they are drained, inspected and mechanically rotated after abrasive material has been placed inside.

"Then continuing their travel they are sprayed with paint which dries while the drums move to another department to be branded and filled. The filling and handling operations are conducted on movable or roller type conveyors until drums reach their destination on the loading dock.

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"If this were a reality, there would be no doubt of an increase in production with the present force or less and a de-

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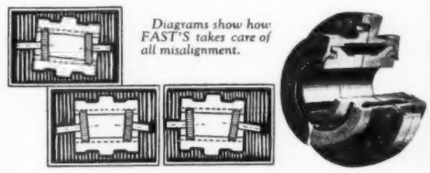

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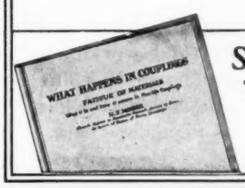

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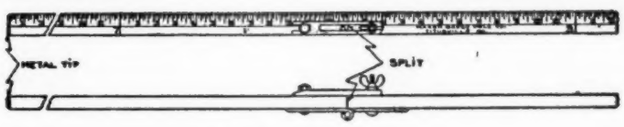

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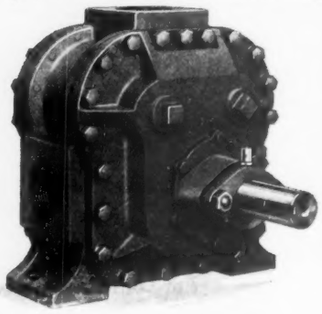

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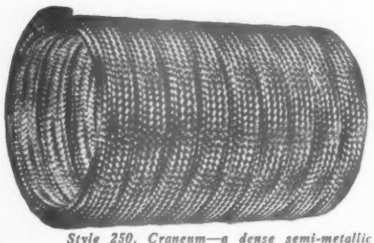

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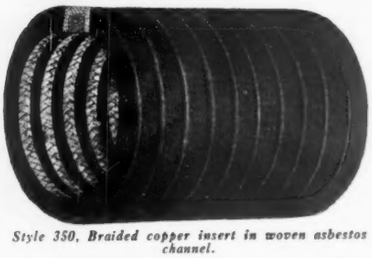

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CALIFORNIA OIL FIELD OBSERVATIONS FOR MARCH, 1929

According to figures collected by the American Petroleum Institute, Pacific Coast office, the total production of crude oil in California for March amounted to 24,324,729 bbls., an average of 784,669 bbls. per day. This is a decrease of 11,785 bbls. per day under February production.

Total stocks of crude and all products in Pacific Coast territory increased during the month 4,088,354 bbls. The total stocks at the end of the month were 152,029,958 bbls. The total stock increase for 1929 up to March 31, was 12,029,064 bbls. Comparative figures as of March 31, 1929, February 28, 1929, and March 31, 1928, are shown in detail in this report.

Eighty-one wells were completed during the month with an initial daily production of 81,046 bbls., compared with 92 wells completed during February with an initial production of 127,208 bbls.

PRODUCTION

(Figures of production and stocks are in barrels of 42 gallons)

District—	Barrels Per month	Daily average Mar., 1929	Daily average Feb., 1929	Daily average Mar., 1928
Kern River	486,393	15,690	17,714	25,822
Mount Poso	1,022	33	110	17
Fruitvale	10,768	347	717	
Round Mountain	2,019	65	27	141
McKittrick	151,236	4,879	4,998	4,948
Midway-Sunset	2,211,223	71,330	70,665	80,831
Elk Hills	572,333	18,462	18,772	23,518
Lost Hills-Belridge	138,653	4,473	4,502	4,082
Coalinga	310,438	10,014	10,101	19,423
Kettleman Hills	106,700	3,442	3,451	....
Wheeler Ridge	22,667	731	773	904
Watsonville	1,937	62	62	67
Santa Maria	146,978	4,712	5,181	6,444
Summerland	3,735	120	121	126
Elwood-Goleta	800,400	25,819	21,616	202
Rincon	108,757	3,508	3,261	1,030
Ventura Avenue	1,677,525	54,114	55,479	51,223
Ventura-Newhall	169,104	5,455	5,593	5,679
Los Angeles-Salt Lake	43,540	1,404	1,486	1,551
Whittier	50,343	1,624	1,578	1,719
Fullerton (Brea Olinda)	415,592	13,408	13,294	15,636
Coyote	377,759	12,186	12,590	13,671
Santa Fe Springs	5,275,300	170,171	189,299	37,584
Montebello	340,807	10,994	11,138	12,439
Richfield	522,848	16,866	17,437	19,370
Huntington Beach	1,429,927	46,127	46,949	56,645
Long Beach	5,815,757	187,605	184,394	125,075
Torrance	444,481	14,338	15,157	19,045
Dominguez	339,816	10,962	10,855	12,577
Rosecrans	212,147	6,843	6,834	6,746
Inglewood	791,027	25,517	26,089	30,101
Newport	2,100	68	55	3
Seal Beach	1,295,115	41,778	34,836	40,110
Potrero	22,397	722	595	3
Lawndale	24,785	800	725	....
Total	24,324,729	784,669	796,454	616,720
February	22,300,707	796,454		
Increase	2,024,022	11,785*		

*Decrease.

STOCKS

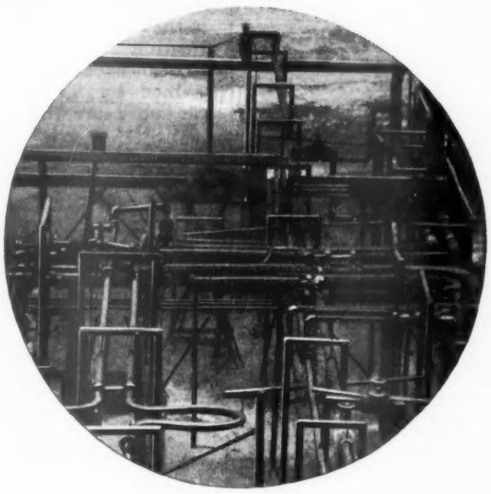
	Mar. 31 1929	Feb. 28 1929	Mar. stock increases	Mar. 31 1928
Heavy crude, heavier than 20° A.P.I., including all grades of fuel	101,981,165	100,778,348	1,202,817	95,880,671
Refinable crude, 20° A.P.I., and lighter	25,172,456	23,081,832	2,090,624	20,215,802
Gasoline	13,310,923	12,290,690	1,020,233	14,779,259
Naphtha distillates	1,970,157	1,825,502	144,655	1,633,736
All other stocks	9,595,257	9,965,232	369,975*	9,268,718
Total all stocks	152,029,958	147,941,604	4,088,354	141,778,186

*Decrease.

DEVELOPMENT

District—	New rigs up	Active drilling	Completed	Dy. initial output	Active produc'g	Abandoned wells Drillers	Abandoned wells Producers
Kern River	4	7	5	780	1,020	..	4
Fruitvale	2	5	1	728	3	..	..
Mount Poso	3	6	2	350	3	1	..
Round Mountain	3	1	2	550	2	..	..
McKittrick	..	1	..	....	287	1	..
Midway-Sunset	8	23	11	3,225	2,390	3	12
Elk Hills	..	1	..	....	212	..	..
Lost Hills-Belridge	1	7	1	25	317	..	..
Coalinga	..	..	..	....	779	..	1
Kettleman Hills	2	17	..	....	1	..	..
Wheeler Ridge	..	..	..	....	34	..	..
Watsonville	..	..	..	....	7	..	..
Santa Maria	1	4	..	....	231	..	..
Summerland	..	..	..	....	89	..	..
Elwood-Goleta	..	5	2	8,550	9	1	1
Rincon	..	8	..	....	26	..	..
Ventura Avenue	7	47	8	6,715	157	..	..
Ventura-Newhall	1	26	..	....	511	2	4
Los Angeles-Salt Lake	..	..	..	....	320	..	..
Whittier	..	..	..	....	163	..	..
Fullerton	..	6	..	....	373	..	..
Coyote	3	3	..	....	207	1	..
Santa Fe Springs	40	168	18	35,836	390	3	4
Montebello	..	..	..	....	173	1	..
Richfield	3	9	1	350	272	..	..
Huntington Beach	3	6	2	330	560	..	4
Long Beach	11	94	24	18,840	910	4	3
Torrance	..	..	..	....	597	..	1
Dominguez	..	..	..	....	73	..	..
Rosecrans	..	5	..	....	102	..	..
Inglewood	..	1	..	....	222	..	..
Newport	..	2	..	....	4	2	..
Seal Beach	2	7	3	4,017	144	1	..
Potrero	2	4	..	....	3	..	..
Lawndale	4	42	1	750	2	..	..
Miscellaneous drilling	12	144	..	....	..	7	..
March	112	649	81	81,046	10,593	27	34
February	133	666	92	127,208	10,683	9	5
Decrease	21	17	11	46,162	90	18*	29*
Average for year 1928	107	520	59	56,802	10,823	15	25
Average for year 1927	97	404	75	39,992	11,276	23	21
Average for year 1926	95	422	76	32,635	11,288	24	17
Average for year 1925	105	417	79	42,247	11,393	28	12
Average for year 1924	103	510	103	42,412	10,903	28	21

*Increase.



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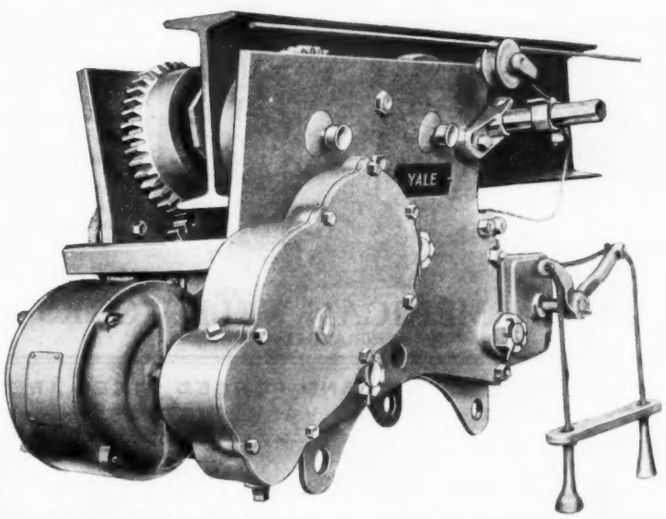

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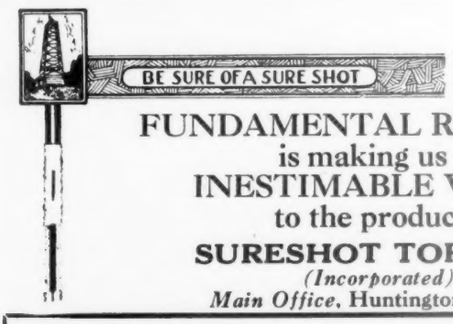

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See Classified Wants on Pages 132-133

CONDITIONS IN THE OPERATION OF GAS LIFT

(Continued from Page 34)

ward through the eductor with its load, its volume therefore increases proportionately as the pressure decreases.

Boyle's Law states that a perfect gas expanding isothermally varies its volume inversely with the absolute pressure and may be expressed thus

$$\frac{P_1}{P_2}=\frac{V_2}{V_1} \text{ or } P_1V_1=P_2V_2=P_NV_N \text{ or } PV=\text{Constant}$$

Therefore, if a volume of 1,000 cubic feet of free gas is produced in a given interval of time at the well head, only a volume amounting to 47 cubic feet at 300 pounds will be effective at the foot of the eductor. Thus $P_1V_1=P_2V_2$ or $14.7\times1,000=(300 \text{ plus } 14.7)\times V_2$ therefore $V_2=\frac{14,700}{314.7}=$ 46.7 cubic feet @ 300 pounds pressure. When expansion has been to such extent that the pressure is 200 pounds the volume will amount to 68 cubic feet, and at 100 pounds only 128 cubic feet.

If the 1,000 cubic feet of free gas has resulted from exponential expansion with s equal to 1.25 the effective amount at the foot of the eductor will be approximately 86 cubic feet.

$$\frac{V_1}{V_2}=\left(\frac{P_2}{P_1}\right)^{\frac{1}{s}} \text{ or } \frac{1,000}{V_2}=\left(\frac{314.7}{14.7}\right)^{\frac{1}{1.25}}$$

V_2=86.2 cu. ft.

It is apparent then that with isothermal expansion much less gas is needed to do a given amount of work than with any other type. If power has been expended in compressing this gas to 300 pounds it is obvious that more power will be necessary for other types of expansion than for isothermal. Then if the flow can be controlled to the extent of partially regulating the type of expansion a saving can be realized and hence an increase in the mechanical efficiency.

If 1 bbl. of oil accompanies the 1,000 cubic feet of gas in the same time interval, then the gas-oil ratio at the well head will be 1,000 cubic feet to 1 bbl. and at the foot of the eductor 47 cubic feet to 1 bbl. At the point in the eductor where the pressure is 200 pounds the ratio will be 68 cubic feet to 1 bbl. and at 100 pounds, 128 cubic feet to 1 bbl. of oil. It is evident that the rate of flow through the eductor is greatly accelerated as the discharge is approached.

Solubility of Gas in Oil

The solubility of gases in liquids is a familiar phenomenon. Reference has been made in previous pages to the part played in the production of crude oil by dissolved gas therein. Experiments have determined the degree of solubility under given conditions and the accompanying effects. The amount of natural gas that will dissolve in crude oil depends upon the character of both the gas and the oil, if other conditions are constant. Lighter gravity oils dissolve more gas than heavier oils (3) and usually wet gas is more soluble than so-called dry gas.

Dissolved gas decreases the viscosity of the oil, influences the surface tension, and in general promotes ease of flow of oil. This topic is of interest in connection with repressuring depleted sands and will be treated more fully in that section.

The accompanying chart shows the degree of solubility of an extremely dry gas in oils as named.

For the California 25 degrees A.P.I. oil the amount dissolved, at 70 degrees Fahrenheit and P equal gauge pressure, follows closely the equation where V equals cubic feet free gas per barrel, P equals 4.95 V plus 10 4.

The Oklahoma 31 degrees oil follows P equals 4.8 V plus 11.2.

The Wyoming 36 degrees oil follows P equals 4.4 V plus 9.8.

(Continued on Next Page)

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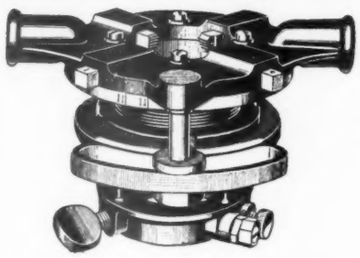

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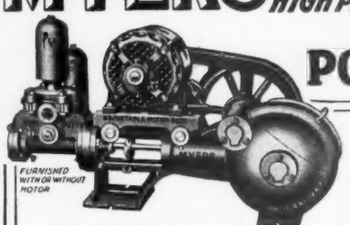

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The average of the three equations is P equals 4.72 V plus 10.5 (3).

Beecher and Parkhurst[3] with a dry gas found approximately the same relations and from their results have been calculated the following:

Oklahoma crude 35.4 degrees A.P.I. P = 5.55 V plus .4.

Oklahoma crude 30.2 degrees. P = 6.45 V plus .07.

Bradford crude 44.3 degrees. P = 4.33 V plus 1.03.

The average for these three is P = 5.44 V plus 0.5.

The average for the two authorities with dry gas is P = 5.08 V plus 5.5.

Beecher and Parkhurst found wet gas to dissolve in crude oil as follows:

Oklahoma crude 35.4 degrees. P = 4.23 V plus .86.

Oklahoma crude 30.2 degrees. P = 5.26 V plus .18.

Or an average for the two crudes subjected to the one wet gas as follows: P = 4.75 plus .52.

The average for all of the crudes and all of the natural gases tested follows: P = 4.91 V plus 3.01.

For the average cubic feet of free gas dissolved per cubic feet of oil at gauge pressure P we may state

$$U = (.03625\ P) - .109$$

where U = cubic foot free gas per cubic foot of oil.

The average for the solubility of air in cubic feet per barrel of oil as illustrated in the graph is P = 19.6 V plus 16.7.

Ditto for Beecher and Parkhurst P = 24.4 V plus 0.

An average of the two is P = 22 V plus 8.3.

It is apparent then that gas is much more soluble in oil than air, and gas has the added advantage that it decreases the viscosity of the oil while air actually increases it. However, the gas dissolved in the oil is latent as far as effective expansion energy is concerned at the moment. Obviously gas is more so this way than is air.

This dissolved gas is released from solution as the pressure is decreased toward the upper part of the eductor and thus the rate of flow is accelerated.

[3]Effect of dissolved gas upon the viscosity and surface tension of crude oil by C. E. Beecher and I. P. Parkhurst. Empire Gas & Fuel Co., October. 1925.

PETROLEUM ENGINEER IS A REGULAR GUY

(Continued from Page 85)

have on a balance sheet or dividend rate. This is an evil that should be corrected.

And now a word to the chap who may be planning pursuit of the elusive liquid gold from an engineering standpoint. It is well to remember that if you have once had your hand in oil you are caught until the last well is drilled and the last still shut down. There is no escape. So if you follow the game why not "know oil?" You may learn much of it in the field in time. You may learn a good deal of it in school in less time. At any rate, know it and remember that it is not on record that any oil man ever retired.

REPORT PROGRESS ON SYNTHETIC GASOLINE

NEW YORK, Apr. 27.—Ending a stay of some weeks in the United States, a group of directors of the I. G. Farbenindustrie Corp., have returned to Germany. While here the directors held numerous conferences with officers of the Standard Oil Co. of New Jersey with a view to effecting a broader working arrangement than that hitherto existing between the two companies. Two years ago the Standard Oil Co. of New Jersey reached an understanding with the German interests under which the two companies have been operating on experiments in hydrogenation for the production of so-called "synthetic" gasoline.

As a result of this co-operation and of the recent conversations substantial progress has been made toward a complete working plan under which the new processes may be generally introduced. Final agreement will depend upon a further examination of legal questions and a settlement of other points found to be involved and which it was not practicable to cover in the recent discussions.

Those who came here on behalf of the I. G. Farbenindustrie were Prof. Carl Bosch, managing director; Dr. Herman Schmitz, financial director; Dr. Wilhelm Gaus, technical director; and Dr. August von Knieriem, legal director.

GULF COAST SHIPMENTS SHOW GAIN IN MARCH; EXPORTS LESS

HOUSTON, Tex., Apr. 27.—Increases in lifting of both refined products and crude for coastwise movements resulted in a substantial gain in water shipments from Gulf Coast ports during March compared with February. A decline was indicated in export movements.

Total water shipments for March were 19,270,637.61 bbls. compared with 18,201,975.89 bbls. for February. This was an increase of 1,068,661.72 bbls. Movements of refinery products for March totaled 11,863,446.29 bbls., including both coastwise and export. During February shipments of refined products were slightly greater due to heavy export liftings, the total for that month was 12,045,528.18 bbls.

Crude shipments for March were 7,407,191.32 bbls. as against 6,156,447.71 bbls. for February.

Shipments were:

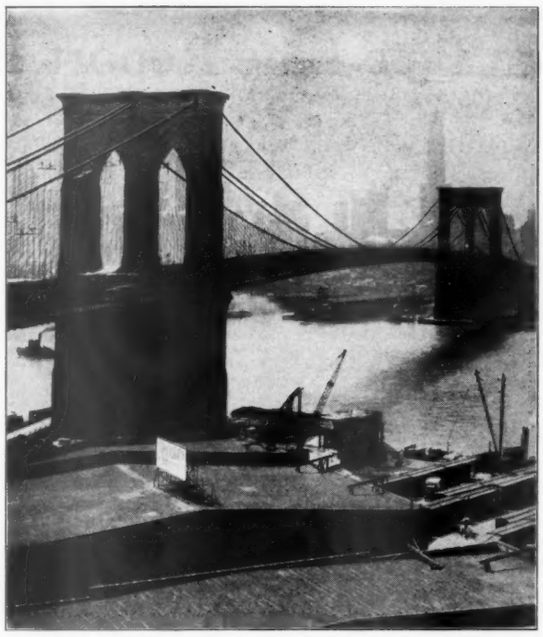
REFINED

Company and port—	Coastwise February (bbls.)	Coastwise March (bbls.)	Export February (bbls.)	Export March (bbls.)
Standard of Louisiana, Baton Rouge	1,086,907.00	1,255,608.00	948,812.00	631,304.00
The Texas Company, Port Arthur	1,110,863.00	1,452,261.00	489,140.00	424,715.00
Gulf Refining Co., Port Arthur	3,088,638.74	3,000,910.05	156,170.04	157,302.01
Magnolia Petroleum Co., Beaumont	1,359,891.64	941,783.69	*.....	.....
Humble Oil & Refg. Co., Baytown	1,722,756.01	1,744,438.74	1,452,084.10	1,489,757.47
Atlantic Oil Prod. Co., Atreco	203,432.04	107,185.73	.....	.....
Pure Oil Co., Smiths Bluff	426,833.61	658,180.60	.....	.....
Total	8,999,322.04	9,160,367.81	3,046,206.14	2,703,078.48

CRUDE

	Coastwise February (bbls.)	Coastwise March (bbls.)	Export February (bbls.)	Export March (bbls.)
Standard of Louisiana, Baton Rouge	461,541.00	578,921.00	53,861.00	53,799.00
The Texas Company, Port Arthur	.....	62,575.00	.....	.....
Magnolia Petroleum Co., Beaumont	838,226.16	982,618.78	*.....	.....
Humble Oil & Refg. Co.:				
Texas City	491,007.00	742,792.00	.....	.....
Ingleside	67,090.00	32,403.00	.....	.....
Baytown	164,148.00	318,626.00	.....	.....
Harbor Island	1,705,455.00	2,275,340.00	.....	.....
Atlantic Oil Prod. Co.:				
Atreco	991,115.77	1,034,179.35	.....	.....
Beaumont	282,619.07	284,933.60	.....	.....
Pure Oil Co., Smiths Bluff	412,273.71	405,316.59	.....	.....
Sun Oil Co., Sabine Pass	689,111.00	635,687.00	.....	.....
Total	6,102,586.71	7,353,392.32	53,861.00	53,799.00

*Magnolia Petroleum Co. makes no distinction in reports between coastwise and export shipments.



STRENGTH

for mighty loads...

Because every strand carries its share of strain.

Stately and majestic—6000 feet in length and weighing more than 26,000,000 pounds, Brooklyn Bridge towers high above the waters of lower New York.

Strength to support its mighty load is achieved by binding thousands of wires together to form four giant cables. Each wire is adjusted at uniform tension; each wire carries its proportionate share of strain.

Likewise, in Rusco Belting, strength to carry enormous loads is secured by weaving thousands of strands together to form one solid, sturdy mass. Every thread is woven at the same tension—every thread carries its proportionate share of the load. Rusco is solidly woven to full thickness without folding or stitching. It has no plies to separate and cause power loss or premature failure.

Rusco insures efficient and continuous operation of oil drilling and pumping rigs. It stands shock loads—delivers power economically—and is remarkably free from stretch.

Rusco is thoroughly weatherproof and oilproof and stands temperatures up to 250° F. Its resistance to oil, moisture and dirt is not dependent on a surface finish that cracks or wears off, but to a preservative that penetrates and protects every fibre of the belt.

We are the original manufacturers of solid woven belting. Our Engineering Department will be glad to assist you in solving your belting problems and reducing power transmission costs. For full information, address Dept. V-11.

THE RUSSELL MANUFACTURING COMPANY

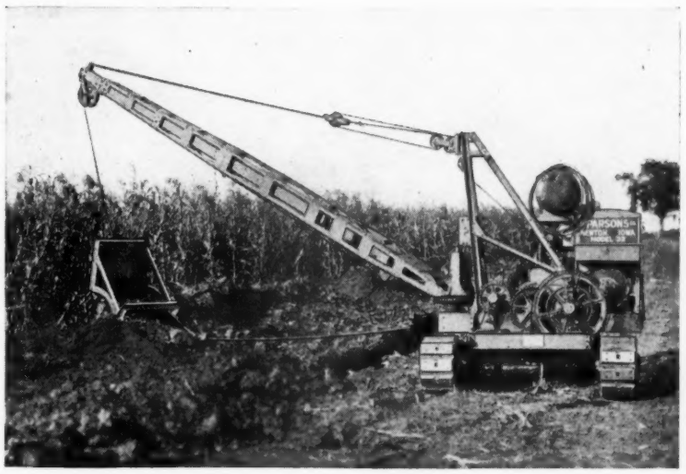
Factories: Middletown, Conn., St. Johns, Quebec, Can.

RUSCO Est. 1830 BELTING

LONG LIFE...GREAT PULL

You want SPEED

in finishing the job, as well as in starting it



The Parsons 32 also handles pipe and sheeting—operates a compressor—takes the place of a small crane.

and you get extra speed from your Parsons Backfiller

WHERE speed counts in the excavator that starts a job, it counts just as much in the backfiller that finishes the job.

Getting dirt back into the trench at lowest cost, and doing it in a hurry, is the particular job of the Parsons 32.

The patented Parsons fair-lead, coupled with improved control, enables the Parsons 32 to do from 10 to 20 percent more trench-filling day after day.

And how that extra percent counts when you're working against time.

NEC

The Parsons Company, Newton, Iowa

Tulsa Office—805 Mayo Bldg.

Division of the National Equipment Corporation

PARSONS

A complete line of trenchers and backfillers

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for February

Runs

Company—	Month bbls.	Dly. av. bbls.
Prairie P. L. Co.*	4,284,000	153,000
Gulf P. L. Co.	1,544,164	55,149
Texas P. L. Co.	920,370	32,870
Magnolia P. L. Co.	2,056,003	73,429
Empire P. L. Co.	1,354,635	48,379
Cosden P. L. Co.	691,576	24,699
Sinclair P. L. Co.	2,954,000	105,500
Oklahoma P. L. Co.	3,237,835	115,637
Other lines*	5,936,000	212,000
Total February	22,978,583	820,663
Total January	25,279,954	815,482
Difference	2,301,271	5,181

Shipments

Prairie P. L. Co.†	5,203,883	185,853
Gulf P. L. Co.	1,491,730	53,276
Texas P. L. Co.	1,023,646	36,559
Magnolia Pet. Co.	1,839,486	65,696
Empire P. L. Co.	1,159,106	41,397
Cosden P. L. Co.	863,456	30,838
Sinclair P. L. Co.*	2,944,675	105,167
Oklahoma P. L. Co.	3,028,990	108,178
Other lines*	5,796,000	207,000
Total February	23,350,972	833,964
Total January	26,246,896	846,675
Difference	2,895,924	12,711

Stocks

	Bbls.
Prairie O. & G. Co.*	35,288,000
Gulf P. L. and Gypsy Oil Cos.	9,560,420
The Texas Company	8,296,567
Magnolia Pet. Co.	9,781,060
Empire P. L. Co.	4,491,239
Mid-Continent Pet. Corp.	3,323,897
Sinclair Crude Oil Pur. Co.*	20,697,000
Carter Oil Co.	12,519,259
Oklahoma P. L. Co.	3,354,338
Other lines*	11,825,000
Total February	119,111,780
Total January	118,283,049
Difference	828,731

*Estimated. †Prairie Pipe Line and Sinclair Pipe Line shipments include Texas crude oil.

Note—Stocks do not include approximately 7,900,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINE REPORT

Runs from Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for February and March:

	Feb.,'29	Mar.,'29
Nat. Transit	133,165.29	181,078.06
S. W. Pa. P. L.	88,660.70	102,780.57
Eureka P. L.	308,930.88	361,950.53
Buckeye P. L. (Macksburg)	298,720.83	328,651.40
Buckeye P. L. (Cleveland)	10,466.65	11,850.63
Buckeye P. L. (Lima, etc.)	81,725.70	106,736.48
Indiana P. L.	3,645.21	5,695.98
Cumberland P. L.	173,139.79	188,917.24
N. Y. Transit	25,714.25	30,819.36
Tidewater P. L.	188,664.86	216,180.03
Pure Oil	55,790.43	60,961.13
Emery P. L.	59,159.57	64,575.89
Paragon Dev.	16,717.79	14,880.20
Stoll Oil Ref.	6,833.00	6,722.77
Total	1,451,334.95	1,681,800.27
Daily ave.	51,833.39	54,251.62

Note—Indian Refining Co. had other receipts of 305,404.33 bbls. Paragon Refining Co. had other receipts of 174,281.48 bbls. Paragon Development had other receipts of 197.81 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky for February and March:

	Feb.,'29	Mar.,'29
Nat. Transit	385,191.81	472,740.05
S. W. Pa. P. L.	334,454.56	324,198.08
Eureka P. L.	203,870.95	227,945.27
Buckeye P. L. (Macksburg)	161,417.11	178,851.61
Buckeye P. L. (Cleveland)	1,932.85	2,675.09
Buckeye P. L. (Lima, etc.)	1,100,029.84	1,398,450.19
Indiana P. L.	1,288,564.76	1,426,742.83
Cumberland P. L.	128,595.90	202,271.56
Southern P. L.	78,401.44	.....
N. Y. Transit	133,227.78	207,577.62
Northern P. L.	154,522.76	185,794.76
Tidewater P. L.	191,990.86	154,430.49
Pure Oil	58,985.39	68,193.52
Emery P. L.	69,672.20	62,136.95
Paragon Ref.	153,894.94	176,375.05
Paragon Dev.	17,084.90	17,320.04
Total	4,462,838.05	5,005,703.11
Daily ave.	159,387.06	161,474.29

Indian Refining Co. reported other deliveries of 314,483.59 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of February and March:

	Feb.,'29	Mar.,'29
Nat. Transit	779,918.51	731,188.54
S. W. Pa. P. L.	473,848.71	430,880.16
Eureka P. L.	1,154,081.70	1,227,449.21
Buckeye P. L. (Macksburg)	533,780.16	496,081.38
Buckeye P. L. (Cleveland)	39,875.08	53,245.56
Buckeye P. L. (Lima, etc.)	2,114,370.56	2,015,652.51
Indiana P. L.	521,024.63	517,499.27
Cumberland P. L.	573,102.52	568,233.96
Southern P. L.	446,321.17	538,367.15
N. Y. Transit	286,204.16	283,675.14
Northern P. L.	401,642.64	377,796.87
Tidewater P. L.	1,303,959.46	1,369,220.70
Pure Oil	14,136.77	8,038.47
Emery P. L.	8,672.52	12,036.26
Indian Ref.	60,203.15	52,393.15
Paragon Dev.	6,568.59	4,622.34
Paragon Ref.	21,124.63	18,740.25
Tuscarora	.....	296,936.59
Total	8,738,834.96	9,002,057.51
Increase	1,141,271.33	263,222.55

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of February and March, showing the gross stocks of the above fields:

	Feb.,'29	Mar.,'29
Pennsylvania	3,246,721.38	3,315,864.74
Lima	659,187.62	578,882.26
Kentucky	747,383.60	742,122.61
Mid-Continent	3,810,386.65	4,038,082.57
Illinois	275,155.71	327,105.33
Total	8,738,834.96	9,002,057.51

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1926	1927	1928	1929
January	55,630	56,209	52,904	51,749
February	60,394	61,298	57,002	51,833
March	61,644	63,247	57,485	54,252
April	63,019	60,927	56,812	.....
May	60,580	60,284	62,067	.....
June	61,121	62,757	58,230	.....
July	63,206	58,674	57,144	.....
August	61,815	60,870	57,745	.....
September	64,639	60,285	53,487	.....
October	161,132	147,080	58,100	.....
November	67,774	57,275	53,565	.....
December	58,755	53,089	52,025	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1926	1927	1928	1929
January	156,056	141,227	146,465	165,721
February	159,488	138,534	167,368	159,387
March	150,239	133,777	158,883	161,474
April	152,374	140,227	172,935	.....
May	160,998	144,594	180,559	.....
June	160,257	149,772	188,024	.....
July	160,045	151,850	189,470	.....
August	151,929	188,653	192,853	.....
September	158,915	144,213	194,138	.....
October	161,132	147,036	176,000	.....
November	172,608	150,975	176,898	.....
December	136,428	144,504	173,572	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1927	1928	1929
January	9,718,008	12,776,710	7,596,564
February	10,119,162	12,180,419	8,738,835
March	10,794,044	12,239,725	9,002,058
April	11,112,295	11,740,125	.....
May	11,359,381	11,602,468	.....
June	11,493,673	11,287,678	.....
July	11,458,128	10,819,331	.....
August	11,989,115	10,236,743	.....
September	12,212,716	9,660,910	.....
October	12,047,661	9,229,709	.....
November	11,939,740	8,365,553	.....
December	12,340,297	7,539,555	.....

Franklin Pipe Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1928—	Runs	Shipments	Stocks
June	3,153.08	2,779.02	17,922.58
July	2,902.50	3,628.02	17,197.06
August	2,874.11	2,350.13	17,721.04
September	2,820.31	5,255.42	15,285.93
October	1,289.93	538.89	17,551.93
November	2,663.53	788.47	19,426.99
December	3,053.60	3,167.53	19,426.99
1929—			
January	2,099.90	.....	19,313.06
February	2,469.47	6,873.20	17,009.23
March	3,330.82	3,595.01	16,745.04

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, April 1	2,337,759.10
Runs from wells	700,107.14
Other receipts	310,352.09
Regular deliveries	547,544.78
Other deliveries	452,147.86

The amount of Illinois oil run by the Tidewater Pipe Co. in March was 28,212.53 bbls. Deliveries were 38,504.82 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1928—	Runs	Deliveries
April	526,013.13	448,282.44
May	632,968.64	522,980.51
June	608,552.49	625,087.33
July	612,256.49	565,678.37
August	639,074.85	671,864.02
September	570,307.91	737,293.50
October	626,147.64	626,290.40
November	576,332.88	702,589.93
December	584,633.00	491,517.26
1929—		
January	570,727.38	545,084.66
February	517,330.17	503,387.70
March	728,319.67	586,049.60

Tidewater Pipe Co., Ltd., also delivered in March 119,507.94 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
September	11,100	.....	18,967	38,200	6,700	74,967	.....	.....	.....	.....	.....	74,967
October	17,323	.....	11,807	6,483	.....	.....	.....	.....	.....	.....	.....	35,613
November	21,333	5,200	25,400	18,200	7,100	77,233	.....	.....	.....	.....	1,000	78,233
December	4,968	2,968	24,678	18,806	3,064	54,484	.....	.....	.....	.....	2,419	56,903
January	15,838	.....	16,676	11,838	7,938	52,290	.....	.....	.....	.....	5,161	57,451
February	14,214	.....	38,750	17,250	11,607	81,821	.....	.....	.....	.....	3,750	85,571

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
September	22,933	19,100	110,467	30,700	14,333	197,533	6,367	41,300	6,333	1,667	55,667	253,200
October	20,161	16,839	128,452	27,710	7,098	200,258	.....	32,226	3,065	1,612	36,903	237,161
November	18,400	16,033	133,700	30,267	8,433	206,833	1,333	37,167	4,633	.....	43,133	249,966
December	15,419	15,968	140,871	42,323	8,709	223,290	2,903	35,129	2,355	....	40,387	263,677
January	11,936	8,903	130,065	34,871	15,709	201,484	.....	34,808	4,098	1,287	40,193	241,677
February	13,750	15,071	135,179	32,750	17,893	214,643	.....	34,357	821	143	35,321	249,964

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS

(In barrels of 42 gallons)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
1928—										
March:	Month	19,118,324	20,162,524	21,542,865	3,379,031	2,687,948	1,866,106	2,401,911	3,522,000	74,680,709
	Daily average	616,720	650,404	694,931	109,001	86,708	60,197	77,481	113,613	2,409,055
April:	Month	18,280,729	19,096,920	21,876,913	3,412,260	2,472,600	1,912,187	2,370,810	3,231,000	72,653,419
	Daily average	609,357	636,564	729,230	113,742	82,420	63,740	79,027	107,700	2,421,780
May:	Month	19,331,866	19,443,355	21,220,046	3,367,809	2,843,847	1,926,026	2,525,043	3,619,000	74,276,992
	Daily average	623,609	627,205	684,518	108,639	91,737	62,130	81,447	116,742	2,396,032
June:	Month	19,164,244	18,482,981	19,877,936	3,202,050	3,075,911	2,074,422	2,425,470	3,401,000	71,704,014
	Daily average	638,808	616,099	662,598	106,735	102,530	69,147	80,849	113,367	2,390,134
July:	Month	19,754,458	18,809,188	22,055,737	3,171,548	2,792,139	2,238,090	2,492,586	3,487,000	74,800,746
	Daily average	637,241	606,748	711,475	102,308	90,069	72,131	80,406	112,484	2,412,927
August:	Month	19,444,899	20,840,804	22,339,131	3,147,058	2,711,787	1,989,264	2,561,840	3,556,000	76,590,783
	Daily average	627,255	672,284	720,448	101,518	87,477	64,170	82,640	114,709	2,470,670
September:	Month	18,908,169	22,456,860	21,554,269	3,047,250	2,540,070	1,830,225	2,432,430	3,229,000	75,998,273
	Daily average	630,272	748,562	718,207	101,575	84,669	61,007	81,047	104,300	2,533,279
October:	Month	19,430,992	23,431,071	22,176,853	3,058,460	2,652,484	1,836,221	2,571,822	3,612,000	78,769,903
	Daily average	626,806	755,841	715,376	98,660	85,564	59,233	82,962	116,516	2,540,964
November:	Month	19,907,526	22,078,680	20,791,798	2,977,800	2,476,080	1,801,914	2,388,870	3,348,000	75,770,668
	Daily average	663,584	735,956	693,059	99,260	82,536	60,064	79,629	111,600	2,505,689
December:	Month	21,574,703	22,425,722	22,180,102	2,988,400	2,521,571	1,846,841	2,289,040	3,581,000	79,407,379
	Daily average	695,958	723,410	715,487	96,400	81,341	59,576	73,840	115,516	2,561,528
1929—										
January:	Month	23,385,939	22,417,030	23,412,192	2,861,641	2,453,526	1,807,887	2,076,070	3,379,000	81,793,285
	Daily average	754,385	723,130	755,232	92,311	79,146	58,318	66,970	109,000	2,638,492
February:	Month	22,300,707	20,448,764	20,816,209	2,529,968	2,154,194	1,569,930	1,965,656	3,122,000	74,907,428
	Daily average	796,454	730,313	743,434	91,356	76,936	56,068	70,202	111,500	2,676,263
	Total 12 months	240,602,556	250,093,899	259,844,051	37,143,275	31,382,157	22,699,113	28,501,548	41,087,000	911,353,599
	Daily average	659,185	685,189	711,902	101,762	85,979	62,189	78,068	112,567	2,496,859